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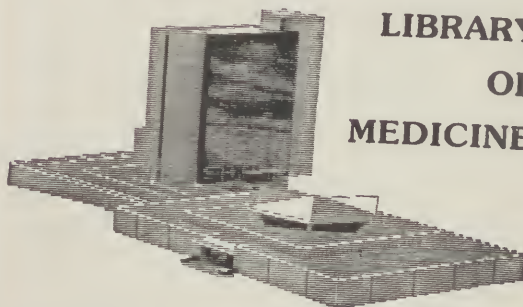
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**THE CONQUEST OF  
CONSTIPATION**

BY THE SAME AUTHOR

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# THE CONQUEST OF CONSTIPATION

BY

WILLIAM S. WALSH, M.D.

AUTHOR OF "YOURS FOR SLEEP"



SURGEON GENERAL

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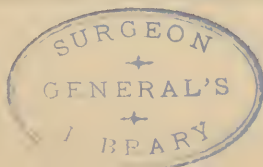
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## PREFACE

CONSTIPATION, or so-called autointoxication, is by far the most common of all impairments. It would be no exaggeration to state that it affects at least twenty per cent of the entire population, or about 25,000,000 people in the United States. One can gain a good idea as to its prevalence by noting the large number of pills, liquids, foods, and appliances advertised for it in the newspapers and magazines. On proprietary remedies for constipation, approximately \$50,000,000 are spent each year in this country; the sales of one laxative for infants and children average almost \$1,500,000 yearly.

Concerning constipation there are many popular misconceptions. For instance, many persons think that the malady is incurable. The truth is, that in nine cases out of ten, even better, the disorder can be cured, and cured without resort to drugs or to surgery. How cure may be effected, however, the average man does not know. Few of the constipated take counsel of the physician, and the few that do rarely persist with the treatment prescribed. Consequently, there seems

to be a need of printed directions which the constipated may follow; which will tell them what to do and how to do it; and which are varied enough to meet individual peculiarities.

Again, many believe that constipation is the cause of many serious illnesses. Without going into the subject here, it may be stated that former views relative to the harmfulness of constipation require considerable modification. Doubtless constipation may, and often does, produce discomforts, but in most cases the effects are not as serious as is often alleged, nor are the symptoms of constipation always results of poisoning. These points, and others pertaining to the newer physiology of the digestive tract, will be considered in the text. Throughout the work, the writer has made an effort to be brief and practical, and to describe a method, or methods, of treatment which may be safely, inexpensively, and effectively carried out in the home.

W. S. W.

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**THE CONQUEST OF  
CONSTIPATION**



# The Conquest of Constipation

## CHAPTER I

### CONSTIPATION—WHAT IT IS AND WHY

I will look straight out—  
See things—not try to evade them.  
Fact will be fact for me,  
And the truth the truth forever.

—A. H. CLOUGH.

THE human body may be said to be a living, automatic, complex machine or engine which is practically always in a state of activity. Even in sleep it carries on, shown by the fact that in sleep the heart, lungs, kidneys, and many other organs continue to function.

Activity is but another name for work. And with few exceptions work can be performed only by the combustion of some form of fuel. The make-up of the human engine is such that its fuel must be derived from food. But since food in its original condition is unsuitable for combustion, being merely energy in a potential state, it must first be digested. This renders it liquid, suitable for absorption into the circulation, and transforms it into a kinetic form of energy.

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After absorption, some of the food is used to repair tissue broken down in the process of vital activity, some generates heat, some enters into the formation of the body's secretions, as digestive juice, and some is stored so as to serve as a reserve supply for future work.

As we all know, there is no fuel, however purified or concentrated, which can be completely utilized; ash or waste always remains. This is as true of food as it is of coal, wood, oil, or gasoline. Consequently, a certain amount of the food remains undigested. The amount varies with the peculiarities of the person and with the nature of the food ingested. Some persons digest and make use of the greater part of the food they eat, as is the case with many obese persons; while others, who eat liberally, are able to use but a comparatively small part of it. Again, some foods, as milk and eggs, are almost completely digested and absorbed, while others, as leafy vegetables and fruits, leave considerable residue. But whether small or large in amount, the unused portion is of no direct benefit to the human economy; it occupies the same relation to the body that coal ashes do to the locomotive, or carbon to the automobile engine. Unless it is removed often enough and adequately enough, it accumulates. And inasmuch as the cylinders of

the human engine (the intestines) are sensitive and elastic, the accumulation of waste causes discomfort, distension, and other unpleasant feelings; again, it lessens the quality and the quantity of the work done, just as accumulations of carbon in the automobile produce loss of power, knocks, and other signs of faulty combustion and performance.

Under normal conditions the body automatically rids itself of its food waste. Whenever food or drink enters the stomach there are at once set up movements of the entire intestinal tract. The intestines, as most of us know, are hollow, muscular tubes, about twenty-seven feet long, which, by their power of contracting and relaxing, churn food, break it up, and propel it; they also manufacture mucous, which keeps them lubricated, and digestive juices.

The object of the intestinal movements after food or drink enters the stomach is to cleanse the upper intestines of waste, and thus to prepare a fresh surface for the material which will shortly enter them from the stomach. The desire to evacuate after a meal is a manifestation of these movements. The movements are more pronounced, and the person is more aware of them, after a heavy meal, as after dinner; also, when the stomach receives food following an

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extended period of rest, as after breakfast. It might be added that the desire to move the bowels after a full meal is also caused by the pressure of the distended stomach upon the transverse portion of the large intestine.

After digestion has been completed in the stomach, a matter of about two and a half hours, food begins to pass into the intestines. The mere entrance of food mechanically excites contractions of the intestines. The intestinal juices, and particularly bile, which are called forth when food reaches the intestines, also stimulate intestinal activity. During the process of digestion various chemicals and gases are formed, which further influence the intestinal movements favorably. Some foods, as certain fruits, excite the intestines by reason of their acids or seeds; other foods, as the bran of certain cereals and breads, by their physical constituents. If a person is physically active, this serves to massage the intestines, jolt them, and thus force the waste along.

Gradually the food reaches the lower intestine. In its passage practically all of its nutriment has been removed by absorption; what remains is composed mainly of indigestible material, and various substances for which the body no longer has need, and which are removed by way of the

intestines. As this waste accumulates it causes a sense of fullness and heaviness, which usually disturbs the individual's sense of well-being and comfort. When the accumulation has proceeded far enough, the small sensitive nerves lining the lower intestine are stimulated. This gives rise to the desire to evacuate, and partly voluntarily and partly involuntarily the intestine is emptied.

Just how often the intestines should be freed of their waste is not a settled question. Animals and peoples living under more or less primitive conditions have two or more movements daily. This is largely because they obtain abundant physical exercise, and eat plentifully of foods which favor frequent movements; moreover, their abdominal muscles are well developed, and they have little or no regard for the conventions as we know them. It is interesting to note that many animals, when constipated, seek out certain grasses for relief; savages, and peoples a little more civilized, often resort to seaweeds for the same purpose. Among some tribes it is the custom to teach intestinal hygiene to the children, and penalties are imposed upon anyone, child or adult, who disregards the instruction.

Among civilized peoples, one movement in every twenty-four or thirty-six hours is the general rule, and on this the great majority main-



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tain their health, efficiency, and good spirits. Some persons will be found who naturally have two movements each day; and others who preserve health even though movements do not occur, habitually, oftener than once in two or three days.

A delay in the elimination of waste material from the intestines is termed constipation; generally, the term is employed only when the delay is habitual. Physicians often use the term intestinal stasis; for all practical purposes, this term is synonymous with constipation. Since at least one movement in every twenty-four or thirty-six hours is the rule, anything less than this should be looked upon as abnormal, though there are many exceptions to this. Persons are also said to be constipated when the waste is expelled with great difficulty, or when such is attended with pain. Using the term in a broad sense, persons are constipated when, even though they have a daily evacuation, the waste is small in amount, and very dry, and hard.

As a general thing, the average person is able to tell whether or not he has sluggish intestines. If constipated he is aware of the fact that his intestines do not move regularly; or, in case there are regular movements, that these cause pain, or undue effort. Usually there is an associated de-



pression of mind and body which is correctly traced to its source, since it is removed speedily following intestinal action. There are, however, some persons who believe they are constipated when such is not at all the case. They have movements regularly, but, for some reason or other, think that these are insufficient, or pathological in some respect. These persons are generally hypochondriacs; persons who are too scrupulous about their health; who, in an effort to correct what seem to them to be abnormalities, do themselves more harm than good. A person who has a movement regularly, even though this takes place only once in every two days, should not consider himself constipated.

Physicians sometimes make use of various tests in order to determine whether or not the intestines are eliminating their waste properly. A favorite method is to have the patient swallow some substance like bismuth subcarbonate, and then to take X-ray pictures of the stomach and intestines. Since the time in which the bismuth should reach various parts of the intestine has been worked out, it is comparatively easy to tell by means of the X-ray pictures if there is a delay in the passage of the waste, and if so at what part of the intestine this is most marked. At other times some substance which stains the waste, as carmine

or charcoal, is given with the food, and the time of its first appearance in the dejecta noted.

Such tests should be left to the physician, who is by reason of his training and knowledge best suited to apply them and to interpret them. A person who presumes to be his own diagnostician is in great danger of becoming a host of diseases which he has not, save in imagination. Any number of persons have believed themselves victims of heart disease because they kept tabs on each beat of the heart, forgetting, or not knowing that there is nothing like emotion in causing palpitation and increased heart action, and that the pulse rate varies with age, sex, season, and many other factors. Others have thought themselves in the clutches of tuberculosis, because, having formed an acquaintance with the clinical thermometer, they found that their temperature varied a degree or so from that which is commonly considered normal; they were unaware of the fact that the body temperature is not constant in every person, that it varies at different times during the day, that it is elevated by worry, etc. Still others have "doctored" with various patent medicines for years, because certain misleading advertisements led them to believe that they had serious disease of the kidneys or other organs. Every man to his trade or profession. When the

average man becomes so misguided that he applies tests used by physicians upon his own person, he is certainly not sticking to his last, and is very apt to suffer, mentally, physically, and financially, by reason of his meddling.

The constipated person's chief difficulty is in locating the true cause of his intestinal impairment. Every well-informed layman realizes that constipation is not a disease of itself; it simply indicates that some physical perversion exists, or, as is more often the case, that one is not living a life that accords with proper intestinal activity. The intestines are not as a rule diseased; if they should be found to be weakened, this is generally a result and not a cause of the constipation.

Constipation may be likened to headache. Headache is not a disease, simply a symptom of some underlying physical error or improper habit of personal hygiene. It may be incited by eyestrain, by faulty posture, by poor ventilation, or by one or more of the seventy odd conditions that may be responsible for it, and which do not originate in the head. In a similar way, constipation can be traced to causes which do not originate in the intestines. The actual causes are comparatively few, and by considering the most common errors, one should be able to gain a good idea as to the cause, or causes, responsible in his

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own case. If he deduces correctly, and institutes corrective measures, he will surely reëstablish regular intestinal movements.

If we were to enumerate the various conditions which may give rise to constipation, it would be necessary to list almost every disease known to medical science. In ninety cases out of a hundred, or better, the causes are simple, and can be controlled. We may divide them into ten classes as follows:

### 1. *Neglect of Personal Hygiene*

Good health requires that all parts of the body act in harmony. This is necessary because each part contributes something which is essential to the welfare of the other parts. And very often an apparently insignificant error produces a profound disorganization of the entire system. For instance, a certain professor of economics, now actively engaged in health conservation in addition to college duties, was for many years a victim of poor health, so much so that he was forced to relinquish his position. He tried many doctors, experimented with diet, climate, and other measures which offered hope of cure. Unable to find relief, and willing to try almost anything, he consulted an old doctor whose repute among his professional brethren was not great. The doctor

told the professor that he had too many wrinkles on his vest; that is, that he did not walk, stand, and sit properly, and that this was the cause of his illness. Like many others who might be told the same, the professor was sceptical, but on heeding the doctor's advice he became well. Other persons have been rescued from profound nervousness, insomnia, and ills almost too numerous to mention by attention to eye defects, the presence of which was often unsuspected; others have been cured of indigestion and rheumatism, by correction of diseased teeth or tonsils. Many other instances might be given.

The better the general health, the better the health of the intestines. Not infrequently constipation is cured by simple means which tend to build up the body generally. Since the organs are dependent upon one another, and since a perversion of one affects the others detrimentally, we can be sure of good health only so long as we observe those rules of right living which experience has shown to be favorable to the harmonious activity of the human mechanism as a whole.

## 2. *Worry*

While worriers have any number of physical troubles, most of which are results and not causes

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of the worries, they all have one impairment in common, namely constipation. This is partly because worry interferes with proper activity of body and mind; but particularly because it slows up the movements of the stomach and intestines. This occurs no matter what the nature of the worry; when the worry concerns itself directly with the digestive organs, the latter become more markedly disordered.

### 3. *Faulty Toilet Habits*

As before stated, when the waste has accumulated in sufficient amounts, it gives rise to the desire to evacuate. If the desire is disregarded, it passes away. It may return the next day, but if again, or frequently, neglected, the small nerves responsible for the desire become so insensitive as to be no longer stimulated by the pressure of waste matter in the intestine. The desire to evacuate indicates that nerve activity is being exerted on the intestines, and this activity is essential. Lack of desire usually means that nerve action is absent, and unless one has trained his intestines to move at definite times, attempts to evacuate in the absence of the desire produced by nerve impulses will generally prove ineffectual.



#### 4. *Insufficient Water*

If the waste becomes hard and dry, it is forced through the intestines with great difficulty. Water is the natural softener of the waste, and a lubricant to the intestines; but we find that many people do not drink of it in amounts sufficient for the body's general needs; particularly true is this of the constipated, which fact will, wholly or in part, account for their constipation.

#### 5. *Inadequate Exercise*

When animals, used to active existences, are kept indoors, they become constipated. Many persons, when they take long journeys by train or ship, find that their intestinal movements occur less regularly than usual. The chief cause of this is insufficient exercise.

Daily experience among physicians shows that it is sedentary persons who are most often the victims of lazy intestines, whereas those who work with their muscles, or who employ them in vigorous play or routine gymnastics, are usually free from the impairment. Gradually, most of us are coming to work more with our heads than with our bodies, and to seek our recreation in inactive ways, as in reading, automobiling, the theatre. Since exercise of the muscles is requisite

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for all-round physical development, and for strength of the abdomen and of the intestinal musculature, it follows that one who neglects to obtain adequate exercise is predisposed to weak muscles, weak abdomen, weak intestines, hence, constipation.

### 6. *Faulty Eating Habits; Faulty Diet*

It is axiomatic that a bad beginning means a bad end. At any rate, unless digestion in the stomach is carried out properly, the normal action of the intestines is interfered with. A sluggish stomach promotes a sluggish bowel. Under-mastication, eating at irregular times, the abuse of hot foods and drinks, overeating, and other sins against the laws of right eating, all play parts in not permitting the stomach to digest well. These sins lead to indigestion, and where there is indigestion there is usually constipation.

The stomach may digest well—at least there may be no subjective signs pointing to indigestion; but if a person eats of foods that do not take the intestines into consideration, constipation tends to arise. Foods that leave little waste after their digestion are not favorable to intestinal activity, since a certain amount of residue is necessary; coarse foods add bulk to the waste, and thus the intestines are better able to sweep



themselves clear. Of foods that leave little residue, meat, eggs, white bread, polished rice, potatoes, might be mentioned. These foods are good in so far as nutrition is concerned, but if they are eaten in large amounts, routinely, and to the exclusion of more bulky foods, constipation is favored. In contrast to these foods, green vegetables, fruits, bran-containing cereals and breadstuffs, supply the intestines with the bulk they require.

Though many cases of constipation are due to a concentrated diet, some are caused by too much coarse, bulky food. If the intestines are overloaded, they may be weakened; indeed, some persons find that a change from a bulky diet to one less bulky is sufficient to remove their constipation. Again, sudden changes in the diet may invite constipation by upsetting the usual routine of the stomach and intestines; this fact should prompt one to effect dietary changes gradually, rather than hurriedly.

An unsuitable diet is probably the most common cause of sluggish intestines. A suitable diet is the chief means of cure. We need daily a certain amount of nutriment, but for intestinal health we require a certain amount of indigestible material in addition. The right combination of the two is the thing most desired.

### 7. *Weak Abdomen*

A person whose abdominal muscles are weak, as is often the case in obesity, in thin persons of a nervous temperament, etc., is predisposed to constipation for many reasons. The intestines require support; if the abdominal muscles are lax, they do not obtain it. This laxness permits the intestines to become distended and weakened; it also allows the intestines to sag. Naturally it is difficult for waste to be passed under such conditions; as we all know, it is far easier to push down-hill than up-hill.

Weak abdomens tend to produce constipation for another reason. A certain amount of straining is necessary for proper evacuation. If the abdominal muscles are weak, the straining is feeble and insufficient.

### 8. *Improper Posture and Clothing*

A person who stands, walks or sits incorrectly—who slouches—crowds the stomach, liver, intestines, and other abdominal organs. This crowding prevents the free passage of waste; it also causes stagnation of the blood in the liver and large vessels of the abdomen. The correct posture elevates all the abdominal organs, and this is most favorable to intestinal action and to the abdominal circulation.

Tight corsets and clothing which constrict the chest or abdomen, bring about the same conditions.

### 9. *Disorders of the Lower Intestine*

Hemorrhoids (piles), fissures, ulcers, and other painful affections of the lower intestine, may cause constipation by the spasm they produce on attempted defecation. Also, because movements are attended with pain, the individual may not heed the call to evacuate. Such troubles of the intestine, or its surrounding parts, often result from constipation, in which cases, they tend to disappear of themselves when the constipation is cured.

### 10. *Drugs*

Laxative drugs, when used habitually, tend to inflame the intestine; again, they destroy the sensitiveness of the intestinal nerves. The irrational feature about drug laxatives is this: In constipation, the sluggish part of the intestine is the last few feet of the colon; in order to reach this by means of a drug, the preceding twenty-four or more feet of intestine are irritated also. As we shall see, later, drugs are sometimes useful, but the less dependence one places upon them in constipation the better.

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A reading of the above causes should readily convince us that constipation is due to factors which are under our control. This being the case, there is no good reason why the malady should be so prevalent. It is something which can be conquered, and without entailing any great expense, loss of time, or hardship. But first of all we must face the facts; realize just what sins against intestinal health we are guilty of; and then institute the appropriate corrective measures. In this connection the words of Napoleon are very applicable: "I have but one counsel for you; be master."

## CHAPTER II

### WHAT CONSTIPATION DOES

Persons who have an easy and regular movement every morning after they have breakfasted are the favorites of nature. They are sweet, affable, gracious, thoughtful, complaisant and efficient. A *no* in their mouths has more grace than a *yes* in the mouths of the constipated.

—VOLTAIRE.

DOUBTLESS most of us know that the intestines contain large numbers of bacteria of various kinds, which, like all living things, increase and multiply when conditions are favorable. The exact number, as well as the varieties, of the bacteria cannot be determined. One investigator has asserted that there is an increase of 128 trillion bacteria daily. The usual explanation of the symptoms of constipation is poisoning, caused by the absorption into the blood of material formed by the action of bacteria on the food waste. It is safe to say, however, that the harmfulness of the intestinal bacteria and their poisons has been greatly exaggerated.

The mere fact that the intestines (the colon

or large intestine under entirely normal circumstances) harbor bacteria is no proof that all the bacteria are detrimental. Similar organisms can be found in the intestines of practically every living thing; we are justified, therefore, in considering their presence as more or less natural. A weighty matter is that most of the bacteria found in the waste are dead; of course these dead bacteria, which comprise about one-third of the excreta, can do no damage. Again, many of the bacteria are useful; some make war on the others, some help in the digestion of food, some are harmless under any conditions.

From time to time writers interested in the autointoxication theory have enumerated a number of poisons that may be generated by the intestinal bacteria. But though we concede that some poisons may be formed, it must be taken into account that many factors are at work in preventing the absorption of the poisons. For one thing, as the waste passes along the intestines, it becomes dried out and resolves itself into small masses. This drying and formation into masses is unfavorable to bacterial growth, to the elaboration of poisons, and to absorption. Moreover, the lining of the intestines—the mucous membrane—exerts a selective action; that is, it selects from the foods, after the latter's digestion, cer-



tain materials and rejects others. The selected substances are, as a rule, such as have body-building properties; the rejected matter is the non-useful or poisonous.

Still another fact is that the intestines can, by their own power, destroy poisons. They cannot destroy all poisons, as is shown by the symptoms which follow the ingestion of decayed food. Decay is, of course, the result of bacterial action. Between the poisons arising from bacterial action on foods outside the body, and on foods inside the body, there is a marked difference. The bacteria in each case are not the same, nor are their products alike. And it has been found that many of the poisons said to result from constipation can be given by mouth, both to animals and humans, without causing any harm; this should be sufficient to prove that the intestines can take care of poisonous material.

Another important point is this: Even though substances, which would be detrimental if absorbed into the blood stream, are manufactured in the intestines, it must be shown that these substances really do enter the circulation. Not only are many substances not absorbed, but they cause no damage to the intestines themselves. We might find an example in bile, which is the secretion of the liver, and which is deposited in

the intestines. In the intestines bile does no harm and much good. Were bile to find its way into the blood, it would produce destruction of the blood cells, discoloration of the skin, lethargy, and other signs of poisoning. But only under rare conditions does bile get into the blood by way of the intestines; in the usual case of "yellow jaundice" the bile duct becomes clogged, and the bile is dammed back into the liver, and thereby is forced into the blood stream. Similarly, many other substances, detrimental to the internal mechanism, are not detrimental to the intestines, nor are they absorbed.

Granting that poisonous material did escape through the intestines, it must pass through the liver before it can enter into the general circulation. The liver is the greatest censor and scavenger that the body has. It constantly scrutinizes the material which the intestines accept as suitable for nutrition; some of this material it okehs, some it refuses to pass and discards by way of the bile. And daily, as the result of bodily activity, waste products are formed which, if allowed to accumulate, would be poisonous; the liver abstracts them from the blood, turns some of them into bile, and changes others so that they can be excreted through the kidneys without injuring the latter. And there is no reason to



believe that the human mechanism is so inefficient that it would absorb from the intestines the material which the liver has rejected.

While we have reason to doubt that poisoning occurs in every case of constipation, there is no question that the constipated person does not feel as efficient as when his bowels are regular; he also complains of various discomforts which he ascribes to the sluggishness of his intestines. We can best consider these complaints by taking up the organs or parts to which they are referred.

### STOMACH AND INTESTINES

A very common sequela of constipation is indigestion, which is usually of the flatulent or fermentative type. It is well to know that there is hardly a variety of indigestion that may not be caused or aggravated by constipation. Many persons who believed that they had some actual disease of the stomach have found cure once their intestines were restored to normal. Sometimes they were not aware as to how cure was effected. For example, a millionaire was cured of an apparently hopeless dyspepsia by taking sterilized sand after meals. If he had consistently used something else that would aid intestinal health, as bran, he would have found cure as quickly and

more safely. Some reputed stomach remedies depend upon laxative drugs for whatever virtue they may possess in indigestion.

Foul breath, coated tongue,<sup>1</sup> bad taste in the mouth, fullness after eating, heartburn, belching, nausea, and vomiting, are often experienced by the constipated. Sometimes there are so-called bilious attacks, characterized by headache, various symptoms indicative of an upset stomach, and vomiting of a greenish-colored material. These "bilious" attacks are thought by many to indicate liver trouble, because of the bile present in the regurgitated matter. However, this is not at all the case, as we shall learn shortly. In passing, it might be well to mention that few, if any, "liver" medicines act upon the liver; if they do good it is because they cleanse the intestines. In most instances, none of the above symptoms are due to poisoning. They are brought about by what Dr. Alvarez has termed reverse peristalsis. Normally, the intestines contract so that their contents are carried downwards. Under certain conditions, as constipation, the movements may

<sup>1</sup> Bad taste in the mouth and coated tongue may be produced in many ways, other than by indigestion and constipation. Their chief causes are diseased teeth and gums, adenoids, abnormal conditions of the nose, neglect of oral hygiene. A certain amount of coating on the tongue is normal on awaking, especially in smokers. As a rule, foul breath and furring of the tongue are less commonly due to digestive disturbances, so that the giving or taking of a laxative when the conditions are present is improper.

occur in the opposite direction—toward the stomach.

In order to understand how these backward movements occur, we may conceive that the movements of the intestines proceed normally until they reach the accumulated waste. When they reach this, they are broken up, or checked. This checking causes the intestines to ripple, something like throwing a stick into water causes rippling. As a result, ripples, going in the direction of the stomach, tend to carry some of the intestinal contents backwards. If the ripples are strong, they may carry bile and intestinal secretions into the stomach, and thereby cause flatulence, nausea, belching, and other disagreeable feelings.

It may happen that the stomach will contract, and force material toward the mouth. If the contractions are great, vomiting may occur; if they are mild, there may be acid eructations, heartburn, bad taste in the mouth, deposits upon the tongue.

The above explanation of the gastro-intestinal symptoms of constipation is more physiological than that which attributes the symptoms to poisoning. If the restoration of regular evacuations relieves these symptoms, it is because the

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stomach and intestines no longer meet obstacles in the performance of their accustomed movements, not because the evacuations eliminate poisons responsible for the digestive disorders.

### NERVOUS SYSTEM

Irritability, apathy for mental and physical work, headache, worry, insomnia, unpleasant dreams, melancholy, tremblings, etc., are troubles for which constipation is often responsible.

These disorders are produced in various ways. For example, the pressure of waste upon the nerves of the bowels, and the distension of the bowels, causes a sensation of fullness, heaviness, discomfort, with which irritability, fretfulness, and similar annoyances are to be expected.

Because the intestines are irritated and distended, impulses are sent by way of the nerves to the brain. These impulses are strong enough to divert one's attention, to prevent one from applying oneself as one desires, to interrupt the free flow of one's thoughts, to promote a feeling that there is something wrong. The same would occur were one to have a marked irritation in the limbs; in the latter case, the cause would not be poisons, nor is the cause poisons in constipation.

For the same reason, namely, stimulation of

the brain by nerve impulses from the intestines, sleep is defeated. If sleep occurs, it may be fitful, unrefreshing, disturbed by dreams. And if this occurs, the person is apt to worry about his sleep disorder; if he has indigestion, he broods about this also. If he manages to get to sleep, but awakes tired, he is irritable, dissatisfied, grouchy, introspective. Thus, a vicious circle is formed.

### SKIN

Many skin blemishes, as muddiness, blotches, acne or pimples, boils, carbuncles, are not infrequently found in constipated persons. Constipation cannot be justly blamed for them entirely. In many instances, persons who have skin impairments do not obtain a sufficient amount of fresh air, exercise, water; they overeat, and in other ways disregard personal hygiene. In these cases, the neglect of hygienic habits produces the constipation, and the constipation merely adds its share to the general disturbance. Of course constipation may cause a blocking of the bile duct, which opens into the small intestine. If so, the bile may be forced backwards into the blood circulation, causing jaundice. Also, if constipation leads to indigestion, the food may not be properly broken up before its absorption,

which may give rise to skin blemishes in certain persons.

There is a prevalent idea that disturbances of the skin are invariably due to "bad blood." The term "bad blood" carries with it the notion that the blood is diseased, *per se*. As a matter of fact, few, if any, actual blood diseases are accompanied by eruptions on the skin. The blood may become impoverished from lack of oxygen; from lack of iron—which is rare; from the circulation in the blood of poisons absorbed from diseased teeth, diseased tonsils, etc.; but in these instances the blood is diseased only in so far as it lacks blood-building elements, or contains noxious substances. Boils, carbuncles, stytes, and some other affections of the skin, are due to infection by microörganisms which are more or less constantly present on the skin; often an abrasion of the skin is sufficient to allow them to develop. Sometimes the skin is irritated by overeating, especially of sugars, and by indigestion; irritation may also be produced by nerve influences. Again, some persons are sensitive to certain foods, and have a rash whenever they eat these substances. As far as the usual blood tests are concerned, the majority of those who have skin disfigurements have blood which is as pure and wholesome as that of persons whose skins are clear.



## BLOOD

Anemia, paleness, blueness of the lips, rings under the eyes, fainting attacks, vertigo, and other troubles which may be associated with blood dyscrasia, are sometimes ascribed to constipation. As with affections of the skin, constipation is not wholly at fault, since it is usually improper hygienic habits which are responsible for the blood impoverishment, and for the constipation.

## HEART AND LUNGS

In some cases, attacks of palpitation of the heart, pains in the region of the heart, and asthmatic seizures, occur when constipation is present. When constipation is really at fault, it is so because of nerve impulses rather than poisons. The nerves which supply the stomach and intestines also supply the heart and lungs. When the intestines are irritated, these nerves are irritated also, with the result that near and remote organs may be unfavorably affected.

Often emotion alone will account for these troubles. It is, or should be, a matter of common knowledge that when the body is out of tune, fear is easily roused, and that unpleasant mental states excite some physical organs and impede others. The constipated person is apt to be fear-

ful that his impairment will do him untold harm; consequently, fear-thoughts come to him often, and it is these fear-thoughts which excite his heart, produce his tremblings, his hurried breathings, his dizziness, his weak feelings in the legs, etc.

As to palpitation of the heart, which makes many people anxious, it is not serious in the majority of cases. And there is nothing which so goads the heart, nothing which so tends to make it run away with itself, than concern about it. Pain felt in the heart area is usually not in the heart at all; most often, it is merely a soreness of the muscles of the chest.

### LOCAL EFFECTS

If waste material accumulates in large amounts, the intestines will become distended and weakened. The sensitiveness of the intestinal nerves will become dulled. These results will aggravate the constipation.

At times, accumulations of waste distend the abdomen, making it flabby and pendulous. Localized masses, which may be painful and which may resemble tumors, may form. The weakness of the abdomen also tends to aggravate the constipation since it lessens the power of the straining at stool.

Many symptoms may be caused by pressure



on surrounding organs or parts. Thus, pressure on the womb may give rise to painful periods and to other discomforts which are often, though wrongly, considered natural to the female. Pain in the back, neuralgia of the lower spine and hips, may be excited by pressure on the sacral nerves. Pressure on the neck of the bladder may produce urinary troubles. A persistent desire to evacuate, which, when heeded, is ineffectual and painful, is called rectal tenesmus; this is often due to constipation, but it may arise in other ways. Pain after evacuation, which may last several hours, is frequently caused by small fissures near the outlet of the bowel.

Hemorrhoids, or piles, are common effects of constipation. In the lower part of the intestine there are many veins. In constipation these are pressed upon by the hard masses, so that they are unable to empty themselves; they therefore become distended. With the cure of constipation a large number of cases of piles can be cured.

Small ulcers and fissures of the lower bowel are usually produced by the attempt to force hard waste from the intestine. When the constipation is removed, these troubles generally disappear. More serious results of constipation, as mania, heart disease, liver disease, kidney trouble, cancer, diabetes, old age (premature), have been laid

at the door of constipation; but before we can accept these ills as of intestinal origin we must have more evidence, for the proof now at hand is very inconclusive. Some persons, including some medical men, have made the subject of constipation a mine of melancholy information, most of which was misinformation. We shall always find those who claim that some one part of the body is the cause of all ills, and who believe that by attending to this part, human misery and sickness of all kinds can be conquered. In the past, there were men who contended that the eye was the prime source of all disease; others ascribed manifold diseases to disorders of the nasal mucosa; others favored uric acid; others a dilated stomach. Today there are many who quickly think of a ductless gland error when one is ill; others think a mental analysis is necessary; others look for vitamin deficiency. All these theories contain some truth, but they can be carried too far. Such disturbances as have been described will be found to be more typical of constipation than those furnished by autointoxication fanatics; if more serious disorders occur they do so rarely.

Since none of the above-mentioned results of constipation has been ascribed to the absorption of poisons from the intestines, the reader may

wonder if poisoning, or autointoxication, ever occurs. That such may, and sometimes does, take place is a fact, even if its frequency has been greatly overstressed. As a rule, little, if any, poisoning follows simple costiveness; nor when a person has movements regularly every two, or even three, days; in the latter cases, these evacuations suffice for the individuals, and their intestines have suitably adapted themselves to the situation.

When autointoxication does really happen the constipation has existed for a long time, and is quite severe in nature. Under these conditions, the intestines may be weakened, and be more permeable than usual. If an individual is in poor health generally, it is possible that the liver and other toxin-destroying organs may, for the time being, allow a certain amount of absorbed, undesirable substances to escape them. When the general health is bettered, and the intestines are restored to regular activity, the protective powers of the body are also restored, so that there is little warrant for the fears of many constipated persons that, while they were deprived of regular evacuations, their various organs were lastingly and irremediably damaged.

Autointoxication is more apt to develop in those constipated persons who partake liberally

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of hearty foods, as eggs, milk, fish, meat, beans. The delayed evacuations allow the residue of these foods to be acted upon by certain of the intestinal bacteria; as a result, products of putrefaction may be formed, and the bacteria may increase in number. It happens, however, that many persons in whom this putrefaction of food is going on, as demonstrated by chemical tests, have no subjective symptoms; others complain of vague ailments. If the constipated person wishes to avoid any possibility of autointoxication, he will limit his intake of meaty foods and substitute vegetables, fruits, cereals, buttermilk, milk, sugar. It has been demonstrated that the intestinal bacteria change according to the nature of the diet. If the diet is rich in protein foods, the putrefactive bacteria are in excess; if the diet favors carbohydrate food, the putrefactive bacteria decrease, and signs of protein decomposition disappear.

The genesis of the symptoms of constipation is so important that we shall again refer to the matter in the next chapter. Before passing on, it may be worth while to explain where the intestinal bacteria come from.

At birth the intestines are sterile, that is, they contain no bacteria. A few days after birth bacteria can be found in them. The bacteria are

derived from many sources. Germs are ubiquitous; the air, for instance, contains large numbers of them, and consequently they find their way into the nose and mouth, and are swallowed with the saliva or with food and drink. By placing its fingers and miscellaneous objects in its mouth, the infant permits bacteria to enter. The skin also contains bacteria, some of which the baby swallows while nursing at its mother's breast. Milk contains bacteria, and while pasteurization may kill some of them, it does not kill them all, nor is the gastric juice sufficiently germicidal to destroy all such germs as may enter the stomach. As foods other than milk are taken, especially raw foods, more bacteria are added. Unhealthy oral states contribute greatly to the number.

These facts should cause no concern. It would not only be impossible to sterilize the food, the skin, the mouth, etc., so that no germs could enter the body, but such a practice would render us wretched, unhealthy hypochondriacs. If we give reasonable attention to oral hygiene, wash all raw foods, discard spoiled foods, avoid placing foreign objects in the mouth, and keep clean, the danger from bacteria is practically negligible.

## CHAPTER III

### CONSTIPATION AND WORRY

Old things need not be therefore true,  
O brother men, nor yet the new;  
Ah, still awhile the old thought retain,  
And yet consider it again.

—A. H. CLOUGH.

AS A RULE, the person who is a victim of worry is a host of constipation, besides other troubles, as indigestion and insomnia. Why this should be the case is perfectly plain to those acquainted with the physical effects of emotional states. Repeated experiments on animals and humans have invariably demonstrated that fear, rage, hate, envy, grief, anxiety, and other unpleasant feelings impede the activities of the body as a whole. It is the stomach and intestines that they particularly influence. Acute, painful emotion, as fear, absolutely checks the flow of digestive juices; it also brings the motions of the stomach and intestines to a stop. In some cases, it causes the digestive organs to reverse their movements, manifested by nausea, vomiting, acid taste in the



mouth. At times, it accelerates the movements, causing diarrhea.

Worry is fear that has become chronic, habitual. Its effects on the body in general, and on the stomach and intestines in particular, differ only in degree from those of acute fear. Worry impedes the flow of digestive juices, and inhibits the activities of the stomach and intestines. Since the worrier is constantly, if unknowingly, applying the brakes to the digestive organs, the latter cannot act properly, and indigestion and constipation naturally follow.

Worry may concern itself with a hundred or more different things, and it may be excited in almost as many ways. While physical impairments do not instigate it as often as the layman supposes, it may have at times a basis in unsuspected visual defects, hidden teeth abscesses, infected tonsils, and other similar errors. More often worry is provoked by monotony, dissatisfaction, absence of interests in life, distressing experiences of the past, domestic difficulties, unsatisfied yearnings, and by trials of life to which the person does not adjust himself satisfactorily.

Worry is so varied in its etiology and subject matter that it would not profit us to take it up in a general manner. If the worrier cannot discover for himself the cause and the cure in his

own case, it is advisable that he consult a competent physician, especially a medical psychologist. The anatomy of worry is well understood today, and in the majority of cases a skilled physician can remove it speedily, providing that the patient is willing to coöperate.

There is, however, one form of worry that we can discuss here in a decisive way. That is the worry about constipation. A great many of the constipated brood about their trouble, and it is the brooding which is often responsible for the constipation's continuance. Therefore, if one is inclined to worry, he must, if he expects to be cured, place his mind in a state of tranquillity.

As before stated, one daily evacuation is considered normal. But this is by no means an absolute, rigorous law of nature. It can be asserted, positively and truthfully, that a daily evacuation is not essential for health. There are any number of people who are keen mentally and physically, and who are of cheerful temperament, who do not have habitually a movement oftener than once every two or three days. And the fact that it is possible to go as long as a week without an evacuation, and not to suffer any noticeable harm, should disprove the alleged necessity of a daily movement for every person. A striking example of this is found in a case



quoted by Hurst. This concerns a French Army Surgeon who had always been constipated, and who did not have an evacuation oftener than once every two months. At the age of forty-two the movements diminished to two or three evacuations a year. The man always felt well, ate well, and died, following cramps and vomiting, at the age of fifty-four. This is an exceptional example, yet it goes to show that we cannot dogmatize, especially when one's evacuations suffer a delay of but a few days.

For reasons which should be apparent, it is best that most of us strive to have a movement once a day. However, we should not make this a fetich, nor should we believe that our health will be better for a movement two or three times a day. Some writers encourage a movement after each meal, and say that one is constipated unless he has three daily movements; such views are not shared by medical authorities. If we have a daily movement, or one every thirty-six hours or so, we should be content. If we find at times that the intestines do not act at the expected time, there is no call for alarm, nor any excuse for employing a cathartic drug. The drug might clear the bowels, but it would leave so little waste that there might not be a natural movement the next day, which would lead to

the taking of another physic, and, gradually or rapidly, the drug habit would be developed.

Doubtless, were we to look up the voluminous literature on constipation, we should learn that hardly any human ailment has not been credited to sluggish intestines. But there are fads in medicine as in fashions. For many years the fad of autointoxication usurped much attention, and as a result, a comparatively minor and non-fatal impairment has become fixed in everyone's mind as a serious menace to health and to life. As far as representative medical opinion is concerned, the autointoxication theory is about worn out; and no longer is it popular, either in medical circles or among the intelligentsia, to speak of it.

Evidences of the change which has been taking place in medical opinion may be illustrated in many ways. For example, it was formerly thought that every person about to undergo a major surgical operation should be submitted to a preliminary intestinal cleansing by means of drugs; study proved that those persons who, by necessity, were operated upon without the preliminary catharsis did as well, if not better. Again, it has been the custom to purge in case a daily evacuation did not occur following confinement; here, also, it has been shown that those who developed a slight fever during the lying-in

period owed it to the cathartic more often than to the lack of it.

Numerous careful studies and investigations during the past few years have amply demonstrated that autointoxication is a comparatively rare malady. Most of the troubles assigned to it are due to other causes. Today we know that eye defects, infected tonsils, diseased gums and teeth, overeating, disorders of the ductless glands, and other deficiencies, may cause the same symptoms that are frequently charged to constipation; hence, we are more careful in ruling out these causes before we believe a diagnosis of constipation a sufficient explanation for the complaints of the constipated. Nor do we consider constipation a cause of epilepsy, apoplexy, heart failure, kidney disease, insanity, and other serious maladies. It cannot be repeated too often that constipation is merely a symptom, not a disease. It indicates that there is some error which is responsible for it, and usually an error which can be removed. If we focus all our attention on the intestines and neglect the causative factors, or other physical defects, we are merely throwing water on the smoke.

It is true that a person who fails to have a movement as often as he thinks necessary will be apt to complain of various troubles, which he

ascribes to constipation, and which may be removed when the movement occurs. We have taken up the mechanism of some of these complaints in the previous chapter; however, there is good reason for believing that, in a great many instances, the complaints originate in other ways.

In the first place, many of the complaints are products of autosuggestion solely. As has been stated, the alleged perniciousness of constipation, by which the average individual understands the failure to have a movement every day, has been so emphasized that there is hardly a person whose mind is not well stocked with symptoms and signs said to be indicative of the impairment. Probably the custom of many mothers in giving a dose of physic to the child every time it has a coated tongue, or is disinclined to eat, has much to do with impressing one with the necessity of a daily evacuation; childhood impressions, we should remember, are lasting. At any rate, the failure to have a daily movement causes many to think that they are in danger of ill health. Becoming anxious, they meticulously note and unduly dwell upon every slight twinge, ache, pain, or other unpleasant feeling they may experience. By giving these insignificant discomforts too much thought they are magnified, so much so at times that they seem unbearable; moreover, by

being unduly solicitous of the physical and mental well-being, many symptoms which have little or no basis actually are called forth. The troubles that are complained of in these cases are all attributed to the sluggishness of the intestines, and are regarded as evidences of poisoning. They are, however, products of self-centredness, introspectiveness, and self-suggestion.

Again, a person may really have a discomfort of some kind which he ascribes to constipation but which is produced by some other instigator. For example, one may be subject to occasional or periodic headaches, which may or may not be accompanied by nausea, indigestion, vomiting. As a rule, these headaches are attributed to various sources, as car riding, reading, sewing, certain foods, biliousness. Many persons consider them due to constipation, and are strengthened in their belief because they feel better after a cathartic has taken effect. While any or all of the above symptoms may be caused by constipation, they are often due to eyestrain entirely. The usual cause of the eyestrain is astigmatism, hyperopia, or weak ocular muscles. Surprising as it may seem, many impairments, as cold extremities, weakness, palpitation of the heart, fainting attacks, nausea, are frequently produced by eyestrain without headache, the latter being



commonly regarded as an infallible and constant sign of eyestrain. Naturally, a constipated person who is unaware of the fact that he has eyestrain will be inclined to blame his intestines for any troubles he may have; but if he feels better by the time a cathartic has taken effect, it is not because of the cathartic, but because the symptoms would have disappeared of themselves, or with the aid of rest, or similar simple measures, in the time it takes a cathartic to act. The cathartic merely lulled the individual into a false idea as to the cause of his troubles. The proper treatment would be an examination by an oculist; or, this failing to account for the symptoms, an examination by a competent physician.

Still another cause for the complaints of the constipated is to be found in the sense of weight and oppression produced by the accumulated waste. As the waste collects, it distends the intestine; there is a feeling of heaviness, discomfort, referable to the abdomen. Often this sense of discomfort is so marked as to engage attention and hold it; as a result, there is a disinclination for work, for deep thinking, and a tendency to be ill-humored. However, the discomforts are due solely to pressure sensations in the abdomen, not to the circulation of poisons.

That it is often psychic influences alone which

are at work in generating the complaints of many of the constipated should be apparent when we consider how speedily pessimism, tiredness, heaviness, headache, mental and physical torpor, disappear following an evacuation. Doubtless all of us have, from personal experience, noted the feeling of comfort and aptitude for work that follows an adequate bowel movement. We feel better, and our vague ailments disappear so rapidly, because the movement has removed the waste which was pressing on the lower intestine, and which, by its weight, disturbed our sense of well-being; also, because we believe that we have eliminated material which is potentially or actually harmful. If our pessimism or other annoyances were really caused by poisons in the system, relief would not occur so quickly; it would take days before the poisons could be wholly eliminated by the kidneys, and meanwhile the symptoms of "poisoning" would be present.

One should, therefore, before instituting treatment for constipation, take a broad, sane view of the subject. Because a few people may have been greatly disturbed by reason of constipation, that by no means implies that we shall be affected similarly. We are not all alike, and frequently an impairment which noticeably upsets one person has no discoverable affect upon an-

other. For instance, some persons who have slight nasal defects go through life utterly unaffected by them; others, with identical defects, have headache, nervous spells, insomnia. In the post-mortem rooms it is not rare to find gall stones and other abnormalities which caused no symptoms during life, largely because their possessors were unaware of their presence. It is, of course, prudent to remedy any pathological condition that may exist, but we should not hurriedly conclude that all kinds of serious consequences are bound to ensue just because we happen to have a certain impairment.

Other points that the constipated might bear in mind are these: 1. Constipation is a curable disorder, and is curable by simple measures. 2. Such poisoning as it may cause is no more harmful than that which results from diseased teeth, tonsils, or infections elsewhere; again, such poisoning as may occur may be very slight; the poisons may not be absorbed; if absorbed, the liver may take care of them. 3. If one fears autointoxication, he can obviate the chances of poisoning by living hygienically, and especially by amending his diet. 4. In very many instances, the complaints made by the constipated are not directly due to constipation, but to neglect of exercise, insufficient fresh air, and other omis-



sions which, in themselves, may be the root of the constipation.

In conclusion, lest some readers infer that many or all of the statements made in this and in the preceding chapter are medical heresies, it might be repeated that comparatively few physicians, especially those who are up-to-date, and who are not ruled by cast-iron precedent, believe that constipation is the alpha and omega of disease and death; practically the only persons who shout (in the newspapers mostly) that it is, are the purveyors of certain pills, potions, and foods, and if we are so uncharitable as to think that they are not moved by pure love of their fellow men, we are forgivable. There was a time when most medical men accepted the autointoxication theory entirely, though many felt that the danger was overstressed, and that psychic disturbances, mechanical influences, and other causes, not only accounted for the constipation but for the symptoms as well. But we need no longer depend upon speculation; there is plenty of reliable evidence, based upon careful analysis of the available literature and upon careful experiment, which shows that the former views anent autointoxication were replete with error. We might call attention to the exhaustive study made by Dr. Walter C. Alvarez, of San Francisco, whose

views can be accepted as authoritative. Not only does Dr. Alvarez deny that the usual symptoms of constipation are due to absorbed poisons, but he insists that those who believe that the malady can account for a long list of diseases have little proof for their contentions, and that many of their assumptions are wrong.<sup>1</sup> Again, we might refer to the work of Dr. Arthur N. Davidson, also of California, and also an authority. In agreement with Dr. Alvarez, Dr. Davidson maintains that the typical symptoms of constipation are primarily attributable to distension and irritation of the lower bowel by fecal masses. In five persons who believed in the toxin theory, who voluntarily constipated themselves for five days, and who developed the symptoms of constipation, relief of all discomforts was obtained within an hour following an evacuation in four subjects, and within three hours in the remaining subject. This should be sufficient to prove that the symptoms were not due to poisons; but if more evidence is required, let it be known that, two days after their intestines had been acting regularly, four subjects had their lower bowels packed with cotton; the discomforts returned at once.<sup>2</sup>

<sup>1</sup> *Journal American Medical Association*, Jan. 4, 1919.

<sup>2</sup> *Idem*, March 25, 1922.

We do not deny that in a few instances absorption may take place. But we do challenge the notion that absorption is the rule; in fact, there is more absorption of poisons in the usual case of diarrhea, or following the administration of a purgative, than in the ordinary case of constipation. Consequently, the discomforts of constipation are not always due to poisons, and the impairment does not cause all the serious maladies which have been attributed to it. Nor do we desire to give the impression that constipation is to be ignored. The disorder does detract from our well-being and efficiency; it may give rise to indigestion, rectal troubles, interfere with sleep, etc. But if we are to conquer it, it is best that we understand the facts, rather than be misled and rendered fearful by fallacious explanations of these symptoms.

The person who regards constipation rationally will obtain cure by the same means that are impotent in one who worries about his constipation. This is because the optimist throws his intestines into high speed; the pessimist is always in low gear. While realizing that regular movements add to our comfort, and that they are desirable, the best one can do is to carry out the corrective measures calmly, quietly, patiently,

convinced that cure will be gained, that pending the cure the health will not be severely jeopardized, and that there is no necessity for resorting to the pill box.

## CHAPTER IV

### PERSONAL HYGIENE

For the body is not one member, but many. . . . And the eye cannot say unto the hand, I have no need of thee: nor again the head to the feet, I have no need of you. . . . There should be no schism in the body; but that the members should have the same care one for another. And whether one member suffer, all the members suffer with it; or one member be honored, all the members rejoice with it.—1 Cor. XII.

HAPPINESS is the quest of us all. And, as most of us know, happiness is rarely possible without health. As the old adage has it, health is wealth; it might be added that health is everything. With health, our morale is high, we push forward to our goals; without health, our fighting qualities are at a low ebb, and we tend to go down to failure. With health, we have optimism, hope, courage, confidence; without it, we are pessimistic, doubtful of our powers, inefficient, conscious of our inferiority, and we seldom rise above a wretched middle state. And the beauty of it all is that health is ours for the seeking, but not for the mere wishing or asking. Anything worth having must be worked for,

sought. Health must be won, but, fortunately, each of us has the means whereby it may be obtained.

By health we do not mean solely health of body. Body and mind are members of the same firm, and what affects one for good or for ill affects the other also. Health of mind depends upon health of body, and health of body upon health of mind. Of the two, health of mind is a shade more important; it is possible to secure a measure of peace when the body is diseased, but with an unhealthy mind content is unknown. It is probably because we think of health in terms of physical fitness entirely that so much sickness and dissatisfaction abound. The mind cannot be neglected with impunity; it requires just as much care as does the body. For rugged health, health of body and health of mind are essential.

Ill health is, of course, due to many things. Some persons are born diseased, or they have bequeathed to them make-ups which are easily disordered. Others, through no fault of their own, are victims of accident, pestilence, maladies whose nature is unknown. The number of these persons is comparatively small; the majority of the ills of mankind are preventable, and are traceable solely to the fact that we pay little or no attention to the various requirements of body and

of mind. Every machine, whether made of metal or of flesh, needs care, else its period of usefulness is soon over. Man is only too eager to provide his automobile, for instance, with the conditions suitable for its proper activity and longevity. Even of his livestock he is careful; he gives his animals suitable food, good water, rest, sunshine, sanitary surroundings, prevents them from being annoyed, etc. Of himself he is most unmindful, and consequently is, much before his time, a subject for the human scrap heap.

Few of us appreciate the great prevalence of disease. Most of us think that we are in good health. Our idea of sickness is the presence of a disorder which causes discomfort, or which confines us to bed. If we are conscious of an impairment, but one which does not trouble us, or if we have a habit which is in conflict with health, we regard it as of no importance. And so, it is not until we take a life insurance examination, or are summoned for military service, or are, apparently suddenly, stricken by some organic malady, that we realize the destruction wrought by our faulty habits of living.

Routine examinations of large groups of persons have revealed that at least seventy out of every hundred have an impairment of some kind or a habit which, unless corrected, will lead to



illness. What is more noteworthy, most of these defective persons believe that they are in very good physical condition. True, in the majority the impairments are minor and curable, but it is from uncorrected minor ills that serious ailments develop. Of the millions of young men tested for military service during the late war, almost half were found to have a defect worth recording. Practically all of the defects were such as were preventable, as errors of vision, poor teeth, weak feet, lung diseases. While it cannot be denied that the standards required by governmental regulations for military service are rather strict, and that the defects which are causes of rejection are not always such as would be at variance with a comfortable and useful existence in civil life, still the great prevalence of physical impairments is appalling. If examinations of men between thirty-one and forty-five had been carried out, it is probably true that the percentage of rejections would have been sixty per cent or more.

If we look at the matter of preventable disease from the point of view of an efficiency expert, the amount of money wasted annually because of unnecessary illness is truly enormous. It is estimated that we spend each year in caring for persons sick by reason of their own neglect about \$1,500,000,000. And our annual fire loss



is only \$250,000,000! Each year the people of the United States swallow 80,000,000 pounds of drugs. Each year they spend in the neighborhood of \$1,000,000,000 for "patent medicines"; an equal amount is easily expended for medicines prescribed by physicians. This economic waste is inexcusable; it can be avoided, or lessened very markedly, by suitably caring for body and mind. Further, by the same care, the misery, poverty, unhappiness, and suffering resulting from preventable sickness, and which cannot be figured in dollars and cents, might be thwarted.

Personal hygiene is the safeguard against sickness, inefficiency, pain. Personal hygiene simply means the adequate protection of the body and mind we have been given. It consists, in general, in performing the acts of daily life in the right way rather than in the wrong way, in omitting certain harmful habits of life and in replacing these by habits that are more conducive to health.

The laws, or rules, of personal hygiene cannot be considered fads or new discoveries. They were known to Moses and to many other ancient sages. Apart from preventing disease by means of vaccines and the like, they are not radically different from the codes of life enjoined upon people in olden times. Modernized, the rules may be summarized as follows:

1. Eat, slowly, and at regular times, food suitable to your age, weight, and occupation. Use meat, eggs, and "hearty" foods sparingly, preferably not more than once a day. Be partial to vegetables, fruits, cereals, hard, crusty foods.

2. Avoid possible sources of poisoning (a) By cleansing the teeth at least twice a day; (b) By eliminating intestinal waste daily; (c) By not overeating; (d) By drinking water freely; (e) By securing adequate ventilation; (f) By using tea, coffee, tobacco moderately, if at all.

3. Take active physical exercise daily, particularly in the open. Spend as much time as possible out-of-doors. Take deep breathing exercises several times a day.

4. Stand, sit, and walk correctly. Wear light, loose, and porous clothes; and clothes which do not constrict the abdomen or the chest.

5. Sleep at least seven hours out of each twenty-four. Spend this number of hours continuously in bed, whether you sleep through all of them or not. Choose a quiet, darkened room, and keep the windows open.

6. Rest several hours each day. If an elderly person, or past middle life, a nap of an hour or two after lunch is beneficial. Play is a form of rest. Have a hobby.

7. Take a cool shower bath every evening if

you are physically able to stand it. Otherwise a steam bath, or a warm water bath, once a week at the very least.

8. Avoid places that are too warm. Ventilate every room you occupy.

9. Avoid outbursts of anger or fear, and do not burden the mind with vain forebodings of the future nor sad events of the past. Keep cheerful.

10. Visit your doctor and dentist at least once a year. Avoid self-medication with drugs.

These rules, it will be seen, are very simple, and there is no good reason why they should not be carried out by everyone. However, because of their simplicity probably, it is hard to convince people of their importance, and the necessity for their observance. Old dogs cannot be taught new tricks, it is said; they can be taught if the dogs are willing. Be this as it may, everyone who wishes a sound mind in a sound body must observe the rules of right living. Personal hygiene is a matter of cold, hard facts, a matter of dollars and cents, and a matter of success and happiness.

Some few individuals say that they find personal hygiene takes up one's time. If a person has been living in utter disregard of all the laws of right living, a little time will be necessary at

first in correcting the faulty habits. Once the faults are remedied, the amount of time given to personal hygiene will not be noticed. As stated, the rules of personal hygiene urge us to perform certain acts of daily life in the right way. We take as much time in performing them incorrectly. And we should remember that if we cannot find time to keep well we shall, sooner or later, have to find time for being sick.

Again, we encounter people who, thinking that personal hygiene entails too much effort and responsibility, try to "pass the buck." The rich say that it is a splendid idea for the poor; the poor say it is meant for those who have lots of time and money. The sick claim that it is intended to keep people well; the well leave it to the sick. The old praise it for the young; the young say they do not need it. It is, however, intended for, and applicable to, everyone, no matter what the circumstances nor the age. The rich it will make richer in happiness, if not in dollars; the poor it will make richer in both. The sick it will cure or greatly improve; the well it will preserve in health. The old will find that it brings more content and ability; to the young it will bring long life. Whether rich or poor, sick or well, old or young, there is no immunity

from the necessity and the value of paying adequate attention to the laws of right living.

Of course there are some persons who contend that they have always lived at variance with personal hygiene, and have not suffered thereby. For example, some aver that they have always abused alcohol and tobacco; others, that they have eaten liberally and irregularly of heavy foods. They are the malefactors against health that nature is giving plenty of rope. Sometimes they escape the noose, just as do some social offenders. But as a rule the criminal gets caught and he suffers. The laws of health are for everyone because they are good for everyone. We can ignore them if we wish, but we should not do so unless we are willing to pay. The penalty is usually misery, premature death, families left in want. And if we are called upon to atone we have no right to complain; as we make our beds, so must we lie in them.

The constipated person may wonder why an observance of the rules of personal hygiene in general is recommended to him. Probably he may have the erroneous notion that there is some specific pill, or some other specific, simple method for curing this, and every ill. There are, it is true, certain drugs and other agents which will relieve constipation more or less rapidly.

But between the word relieve and the word cure there is a great difference; again, most, if not all, of these speedy, so-called cures eventually do more harm than good.

The constipated person is advised to observe all the rules of personal hygiene for many logical reasons. If the causes of constipation are reviewed, it will be seen that practically all of them are referable to faulty habits of life. Not infrequently, several errors are present in the same person; by attention to personal hygiene in general these errors are removed. Again, it is very unwise to focus one's efforts on one part of the body, and neglect the other parts. We may masticate our food well, but if we worry we lose much of the benefits of proper mastication. We may take adequate exercise, but if we habitually assume a poor posture we minimize the advantages of exercise. Each part of the body has a function to perform for the good of the organism as a whole, and each part requires attention. This attention is impossible unless all the rules of right living are observed.

We should always be mindful, however, that the body does not need undue care. Indeed, it is very harmful to regard the rules of right living so scrupulously that the body's mechanisms and apparent disorders are always uppermost in



thought. The rules of personal health should never be taken with great seriousness, nor should they be made a fad; this injunction is especially pertinent to those persons who are inclined to be solicitous about their health. We cannot worry the body into a normal condition, though we can worry it into a state of more or less complete disorganization. If we give our bodies, and our minds, reasonable care, and quietly observe the simple rules that are favorable to general health, we may feel assured that our bodies and minds will conduct themselves properly, and without the necessity of our constant supervision.

The better the general health, the better the health of the intestines, and the more quickly are the disorders of the latter removed. However, if a person is conscious of a definite impairment, it is advisable to pay some special attention to it, while not neglecting the other parts of the body. If the disorder is constipation, stress should be placed upon those aids which are likely to be most valuable in its removal. But first of all, the probable cause or causes should be discovered. The constipated individual should, therefore, take account of his habits. Should he find that he has been disregarding certain laws of healthful living, measures should at once be instituted that will be corrective. For instance, if



he has been taking little or no physical exercise, he should institute a change and exercise adequately; if his diet has been such as does not favor intestinal activity, it should be altered until it is suitable. General measures, applicable in practically all cases of constipation, as training the intestines, water-drinking, assuming the correct posture, proper eating habits, should be followed routinely. With the removal of the underlying fault or faults, the constipation will be removed.

The cure of constipation is largely a matter of self-discipline. If one is not willing to discipline himself, remove his faulty habits, cure is rarely possible. Moreover, one must persist, as a rule, in carrying out the measures helpful in his own case. A few days' trial of the remedies is an unfair test of their usefulness; they should be followed faithfully until their efficacy has been demonstrated, and then for the rest of one's life, if need be. The required rules are simple, consume little time, and necessitate no hardship; indeed, after practicing them for a time, they will become habitual, and will be performed more or less unconsciously.

## CHAPTER V

### TRAINING THE INTESTINES

That to which we have been accustomed becomes, as it were, a part of our nature.

—ARISTOTLE.

ONE of the first requisites for the cure of constipation is unfailing regularity in going to the toilet at a certain time, day in and day out, year in and year out. By so doing, it is perfectly possible to train the intestines so that they will move, practically of their own accord, at fixed periods. If those who are not constipated would make use of this fact, they could educate their bowels not only to move more regularly, but, also, at times when it would be convenient; and thereby they would ensure their intestinal health and the health which follows. Those who are constipated would find that this one measure would often suffice for cure.

Constipation may result from failure to heed the call to evacuate on a single occasion. This does not often happen; it is, as a rule, repeated neglect which causes the impairment. The bowels are ready to perform their functions as

long as the individual is willing to coöperate by going to stool promptly when the desire manifests itself; even a delay of five minutes may cause the desire to disappear. When the natural promptings of the intestines are frequently disregarded or postponed, the accumulated waste exerts undue pressure upon the small sensitive nerves of the lower intestine, stimulation of which ordinarily gives rise to the call; these nerves then become less sensitive, finally deadened, so that the call becomes very feeble or is absent.

Men are not, in general, backward about attending to toilet requirements. However, business men are often victims of constipation because it was inconvenient, on several occasions, to attend to the call. Again, some scrupulous workers, fearful that the boss may note their absence, often postpone the act or perform it very hurriedly; they thereby court constipation, which is not very hard to woo and win. It is women who are the greatest offenders. Especially where men and women work together, at mixed social gatherings, even at home, many of the gentler sex refrain from visiting the toilet lest they excite undesired notice or cause secret levity. Usually these persons are very sensitive, too self-conscious; in popular parlance, they are

very modest. This form of modesty is false, and cannot be too strongly condemned, since it is often carried so far that health suffers. If one cannot feel equal to attending to the call whenever and wherever it arises, he or she can, at least, train the intestines to move at times when it will be convenient, and unlikely to generate misgivings.

As before stated, one evacuation a day is desirable. And inasmuch as it is possible to train the bowels to operate at definite times, instead of allowing them to move at irregular intervals and thus inviting constipation, they should be encouraged to act at such times as are most convenient for us.

The education of the intestines is urged upon every person, constipated or not. But it is upon the constipated that it is enjoined particularly. The training may be effected in the following way:

On arising, drink slowly a glass of cool or warm water. There is no objection to hot water if it is found to act better. The breakfast should be hearty, and, if possible, should consist of fruit, butter, cereal, graham bread, with whatever other food one may desire. Fifteen minutes after breakfast, or directly after if necessary, the person should go to the toilet, and, without un-

due strain, should endeavor to move the intestines. If one has been constipated for a long time, the first attempts may be fruitless; this should cause no concern whatever. If there is no result after fifteen minutes of natural straining, no further efforts should be made until the next day, unless a desire appears between times. Water between meals, and the eating of an apple, a pear, a few figs, dates, or prunes at bedtime will render the training more speedy.

While one can train the intestines to move at any time, results are more rapid and certain when the after-breakfast period is chosen; and most people are free to attend to the matter then. If preferred, one may select the evening, especially if he partakes of a heavy meal at this time, though because of company and social duties it is not always possible to follow the routine. A convenient, definite hour which is not apt to suffer interruptions should be picked out, and should be rigorously set aside for toilet purposes. If, for example, one goes to the toilet at eight a.m., he should go to the stool every day at this hour; if possible, there should not be a variation of five minutes from day to day. This may seem to be a small detail, but it is a very important one.

Some persons say that they have tried to train

the intestines but without success. The cause of their failure was chiefly lack of perseverance. Because they obtained no movement after a few days' trial, they concluded that further effort was useless. It is not reasonable to expect that a quick cure will attend the plan outlined above, nor that it will in itself cure all cases, especially if other measures which promote intestinal health are disregarded. It must be taken into consideration that the normal sensitiveness of the intestines has become weakened, and that it will take time before the bowels will regain their power. The constipation is habitual, has long existed, and a cure in a day, or after a few attempts is not logical. Just when results will manifest themselves, it is a matter that cannot be stated dogmatically; sometimes a few days are sufficient; sometimes a week or more is needed. The old saying, "If at first you don't succeed, try, try again," is one that every constipated person should take to heart. What man has done man can do; and any number of the constipated have, by obedience to this simple advice, freed themselves of their impairments of years' standing, and are able to tell in advance the exact time when their bowels will act.

Once the intestines have been trained, a desire will usually make itself known at the accus-



tomed time. However, in some instances, no call arises, yet on going to the toilet it is found that a movement can be effected. It is important, therefore, to attend to the duty at the designated time whether or not there seems to be a necessity for it. Good habits are harder to form than bad ones, but easier to break. After good toilet habits have been established, it is not prudent to believe that a postponement now and then does not count. It does count, and by one omission the training of weeks may be destroyed, thus requiring another course of training.

It is not enough to visit the toilet at a fixed hour each day; the mind must be tranquil. Many persons are obsessed by the idea that, no matter what is done, their intestines cannot be emptied; and this thought, occupying their attention unduly, is the barrier to their success. If we undertake anything convinced that we shall fail, we are almost certain to fail. On the other hand, confidence, will-power, wins many a battle against seemingly unconquerable forces.

One should, therefore, be convinced that the intestines can be restored to a normal condition, if only because doubt is fear, and fear acts as a brake to the intestinal movements. The conviction that success will be achieved should be uppermost when an evacuation is sought. While



it is advisable to give attention to the attempted movement, frantic straining efforts are to be avoided. In some cases, it is best to relax the mental tension, as by reading. Men often find a smoke very helpful.

Should it happen that a movement does not occur, it should cause no concern, nor should it be allowed to cast a gloom over the day's activities. Probably the previous day's movement was sufficient, and is the reason for the present day's failure. The best thing to do is to forget it, to regard it as of no importance. One's health, happiness, and efficiency will not at all be jeopardized by a failure, for, as before stated, constipation is far from being the menace it has been said to be. The morrow cometh, and on the morrow another effort can be made. By fearing constipation, by retarding the action of the intestines with gloomy thoughts, especially thoughts of failure, constipation is won; by convincing oneself that it can be conquered, it is half-vanquished; it is utterly routed when to this conviction are added those simple measures which go to make intestinal health.

## CHAPTER VI

### WATER-DRINKING

Till taught by pain,  
Men really know not what good water's worth;  
If you had been in Turkey or in Spain,  
Or with a famished boat's crew had your berth,  
Or in a desert heard the camel's bell,  
You'd wish yourself where Truth is—in a well.

—BYRON.

A QUESTION often put to patients by the physician is: How much water do you drink every day? Judging by the answers he receives, most sick people drink water very sparingly. The same is true, no doubt, of persons who consider themselves in good health. Yet the physician realizes that water is one of Nature's most wonderful preservers of health and correctors of disease. If all of us appreciated this fact, and made use of it, there is no doubt that such diseases as result from imperfect elimination of body wastes would be very much less in evidence.

Water is oil to the human machine. The body needs it to moisten the tissues, to dilute the various fluids produced in the body, to regulate the body temperature, to aid in the formation of

digestive juices, to help the blood carry nutriment to the tissues and waste to the excretory organs. When sufficient water is taken daily, harmonious action of all parts of the body is facilitated. Failure to take the required amount causes imperfect function; the body secretions, including the digestive juices, are diminished, and waste matter is permitted to accumulate, the latter being often responsible for insomnia, headache, certain skin blemishes, malaise, and other disturbances. It is not going too far to assert that some cases of kidney disease are due to chronic water deprivation. Every day of our lives, as a result of the work of the various organs, waste material is formed which is more or less poisonous. As we all know, the more dilute a poison the less its toxicity. Drinking an adequate amount of water daily dilutes such poisons as result from body activity, and thus renders them less apt to irritate the organs of elimination, especially the kidneys. On the other hand, when insufficient water is drunk, the body poisons become concentrated, are removed sluggishly, and may irritate and inflame all organs or parts with which they come in contact. Many persons who attribute the relief from backache, headache, etc., to the pills they take, in reality owe the credit to the water taken with the pills.

It is a well-recognized fact among physicians that constipation is, in many cases, due solely to insufficient water-drinking. The constipation occurs because the intestines become dry, food passing through them with difficulty. It is also agreed by physicians that, except in a few instances, free water-drinking will cure or materially aid a cure.

There are very few conditions in which water cannot be used freely. In the very old, in diseases of the heart and kidneys, in certain forms of stomach trouble, as ulcer, the amount of water taken each day should be regulated by the physician, this being a matter to be determined according to each case. Most people, however, can follow with perfect safety and with profit the injunctions given in this chapter.

How much water should we drink each day? This depends upon many factors, as diet, season, occupation, body weight, age. For instance, a person who uses foods or drinks that contain considerable water does not need as much as a person whose diet is inclined to be dry. Such water-rich foods and drinks are milk, water-melon, grapes, oranges, pears, grape fruit, tea. Again, a laboring man and an athlete require more water than a sedentary person, since there is a greater loss of water by way of the skin. In

summer, as well as in hot climates, more water is needed than in winter or in cold climates. Those who are stout can use more water than a lean person. As is well known, water tends to be fattening. In infancy and old age less water is required than in middle life.

The normal person passes by way of the skin, lungs, and kidneys about three quarts of fluid each day. Even in winter from two to three pints of sweat are produced daily. Part of this fluid loss is made up for by the water contained in the ingested food; but the greater part must be derived from water itself. Experience has shown that from four to six pints of water (eight to twelve glassfuls) are about the right amount for the average person, and this is the amount that we should allow ourselves.

There has been considerable controversy as to whether water should be taken with meals. The older physicians were very much opposed to the practice, though they did countenance water-drinking a half-hour or so before or after meals. They argued that water at meals diluted and weakened the digestive juices, that it added to the weight of the stomach, that it prevented the enzymes of the stomach from coming into contact with the food, etc. At present we know that these objections are not valid. In the average healthy

person, in place of diluting the gastric juice, water aids the production of a juice of good quality. Moreover, water remains in the stomach but a short time, so that it cannot add to the weight of the stomach, nor can food float in it. Of course, if a person has indigestion, or if he has a dilated or sagging stomach, it may be advisable that water be taken sparingly at meals; under such conditions, the stomach's ability to expel water may be impaired.

The majority of us, including the constipated, may take water whenever we care to. It is not well to drink so much that the system becomes water-logged, nor to drink large amounts at one time. It is best that water be drunk slowly. This does not mean that it should be sipped; merely that it should not be gulped down.

Occasionally water at meals aggravates constipation. If this is found true in any given case, water should be taken only between meals.

The greatest objection to drinking water at meals is the temptation to use it while food is in the mouth. Digestion begins in the mouth. By proper mastication the food becomes permeated with the saliva, the latter containing ferments for the digestion of starches and sugars. If water is taken while food is in the mouth, the chances are that the food will be imperfectly chewed and



imperfectly mixed with the saliva, this leading to indigestion. Concerning the influence of proper mastication on digestion more will be said later. Here it may be stated that if water is not employed to wash food down, or in place of saliva, no harm will follow its use at meals.

From a physiologic point of view, inasmuch as water aids in the formation of digestive juices, the custom of drinking it at meals is to be encouraged. Indeed, in some cases of dyspepsia, where its use seemed contraindicated at such times, it has been found to be particularly serviceable. There are other times when it is just as advisable to use water. The physician formerly recommended that water be taken on an empty stomach. Since the stomach was presumed to be empty after a night's sleep, water before breakfast was the time recommended. The object of the advice was the procural of bowel movements, for it has long been known that water the first thing in the morning aids intestinal action. We know now that the stomach is never empty; that even after sleep it contains two or more ounces of fluids which have passed into it from the intestines over night. Water on awaking, or a half-hour or so before breakfast, will wash out this fluid which, if allowed to remain, may impede digestion. It is probable that those persons



who feel nauseated should they eat breakfast owe it to the fact that a large amount of this intestinal fluid passes into their stomachs during the night; if plenty of water is drunk before breakfast, so as to free the stomach of this material, their distress after eating may be remedied. Again, by drinking water the first thing in the morning the formation of digestive juices is stimulated; and because water passes out of the stomach quickly, the intestines are also cleansed and defecation is aided. Water before lunch and dinner removes from the stomach whatever food remnants there may be in the organ, besides ensuring a liberal production of gastric juice. Water after meals may be taken without harm; in fact, it aids absorption from the intestines, and, if we are in the habit of eating hot foods, it equalizes the temperature of the stomach and intestines. Water between meals also aids absorption and provides the body with liquid necessary for the proper performance of its varied functions.

There are a number of bitters and other alleged appetizers offered for sale, but it is doubtful that any of them can surpass pure, cool water. Many of the advertised bitters are rich in alcohol, and the latter is more of a hindrance than an aid to digestion. Were the persons who resort to bitters, as well as to the now rare cocktail, to sub-

stitute a glass of pure, cool water a half-hour or so before meals, they would often find their digestion and general health much improved.

Water is most agreeable when cool. If one is in very good health, ice water may be drunk, if drunk slowly and in small quantities. Ice water is dangerous if one is sickly, has dyspepsia, or is fatigued. The same holds good in hot weather, and after vigorous exercise. Cold water leaves the stomach rapidly; it may, therefore, chill the intestines, and incite cramps or more serious results. Hot water also leaves the stomach soon after ingestion, but its effects are practically negligible, if it is not taken habitually and often. If the object of the water-drinking is to effect a bowel movement, prompter action will obtain by the use of hot water.

A person who drinks a glass or two of water on arising, on retiring, before and after meals, and between each meal, is sure to obtain sufficient water for his daily needs. As before stated, there is no objection generally to the employment of water with meals.

The constipated person drinks too little water as a rule. It certainly behooves such a one to drink water as above recommended. It is best not to leave the matter to memory, but to adopt some sort of a schedule, as to drink a glass of water

every two hours. After the habit of drinking water freely is acquired, one will find that he drinks it frequently and more or less unconsciously.

A pinch of salt added to the drinking water will cause one to drink more water later on. Those who are negligent about water-drinking may take advantage of this fact, and add a pinch of salt to the glass of water taken before breakfast. This should not be kept up, however, and it is not advisable if there is a tendency to dropsy or obesity.

There are several methods of water-drinking that are of particular value in constipation. One of these is the drinking of a glass—or several glasses—of water, preferably hot, on arising. The water may be flavored with lemon juice or orange juice if desired. If cool water is drunk in the morning with the object of benefiting constipation, it must be drunk at least a half-hour before breakfast; it thereby enters the intestines promptly, and helps to soften the waste matter therein contained. Since the intestines have been prepared, the further stimulation afforded by the taking of breakfast is more apt to produce results.

A glass of hot water at night suffices to maintain the intestinal health of many persons. A very good recommendation is the following: Be-

fore going to bed drink a glass or two of water, hot or cool, as preferred. A few figs, dates, or prunes may be swallowed with it. In the morning restrain the desire to urinate until it seems that the act can be postponed no longer. Then prepare to move the bowels. Very often it will be found that bowels and bladder will operate at the same time.

Many persons who cannot be induced to drink plenty of ordinary water will employ table waters liberally. To many of these special waters there is no objection, since they are free of cathartic salts. Others are very laxative, but only because they contain salines; they are, therefore, open to the same objections as drugs, and in the treatment of constipation the object should be to avoid drugs of all kinds. Many people think that spring waters are better for laxative purposes and less harmful than synthetic waters, but this remains to be proved. The fact that a certain water is found in nature is no reason why it should be considered innocuous, or possessed of special virtues. Drugs are drugs wherever found. Another consideration is that many spring waters, as well as manufactured waters, are sold at extortionate prices, taking into account the fact that waters of equal effectiveness can be made at about one-tenth the price asked for them.

The advice to drink water plentifully does not apply to carbonated waters, as soda water. Some carbonated waters are found in nature, but most of them are made by forcing carbon dioxide, a gas, into water. When carbonated waters are taken into the stomach, some of the gas is liberated; if taken in large amounts, and especially if one has indigestion, one may experience considerable distress. Soda water, when drunk freely or frequently, will upset a strong stomach, and there is no doubt that it has caused much dyspepsia.

In times of typhoid, dysentery, or other epidemics, or when there is any doubt as to the purity of the drinking-water, it is wise to boil the water. Boiled water has a flat taste, but this may be overcome by aërating it; for example, by passing the boiled water from one pitcher to another several times. The water we have on tap in our houses is, as a rule, satisfactory both as a thirst-quencher and as a remedy in constipation, and is practically as curative as many world-famed spring waters *per se*. It is well-water that should be avoided; let us sing of the old oaken bucket, but let us leave its contents alone. Such water is frequently contaminated. We might add that during the hot months, if not always, and when intestinal disturbances are present, babies should

be given boiled water only: of course, the water should be cooled.

Distilled water has no peculiar value in constipation. It is often useful where there are tendencies to kidney stone, "brick dust" (gravel) in the urine, deposits around the joints, and certain types of so-called chronic rheumatism. Its benefit resides in the fact that it is a better solvent than ordinary water. It may be employed in these cases, either to replace the usual water entirely, or to replace it by one-half. In middle life and after it may be of some service in increasing elimination, and in impeding arteriosclerotic changes. It should not be taken by the young, inasmuch as it may deprive them of salts requisite for proper growth. There is no proof that distilled water irritates the stomach or intestines.

Sometimes it is asserted that the use of boiled water, and changes of water, cause constipation. In such cases the explanation is autosuggestion rather than the waters themselves. Since a change in drinking water is often associated with altered living habits—as when one goes on a visit—and with a lessened intake of water due to a dislike for it, these points must be considered also.



## CHAPTER VII

### EXERCISE—ACTIVE AND PASSIVE

When at early morn from bed you rise, wash in cold water both your hands and eyes. With brush and comb then cleanse your teeth and hair; and thus refreshed, outstretch your limbs with care.

—ANCIENT RHYME.

OVEREATING and deficient exercise are our two chief sins against good health. Overeating—and by overeating we do not mean eating to the point of fullness, but eating excessively of so-called hearty foods—stokes the human engine with more fuel than it has need of or can take care of; consequently, the fireboxes become overloaded, choked, clogged, exhausted, and deteriorate. Deficient exercise permits this state of affairs to remain, and adds to its intensity.

As a rule, those who lead active lives in which the musculature is called into play are not subjects of constipation. On the other hand, the sedentary are almost always affected. An exception may be made in the cases of athletes, many of whom are constipated, chiefly because their diet is rigorous, and because they lose considerable water through the skin.



Adequate exercise combats costiveness in many ways. It quickens the circulation, sharpens the appetite, clears the skin, flushes the kidneys, stimulates the brain, and in other ways improves the health of the body as a whole. It strengthens the abdominal muscles, massages the liver, thereby causing an outflow of bile, the latter directly exciting intestinal action. Again, exercise mechanically jolts the contents of the intestines, and forces them into a lower level. Those who do not obtain exercise sufficient for their needs tend to be constipated because these natural stimuli to evacuation are absent.

There are few conditions in which active physical exercise is contraindicated. If one has some inflammatory disease of the abdomen, heart, lung, or kidney trouble, arterial disorder, the nature and the duration of the exercise, if any, should be determined by the physician. Most persons, however, require and should have at least fifteen minutes of vigorous exercise each day; twice this amount, in fifteen-minute periods, would be preferable.

The more one exercises out-of-doors the better. Ten minutes' exercise out-of-doors is worth a half-hour's exercise indoors. Moreover, to be really useful, exercise must be taken consistently the year round. In the warmer months most per-

sons are not averse to exercising, but with cold weather such is no longer the case. Yet winter has its sports, as snow-shoeing, tobogganing, skating, skiing, ice boating, or if these sports cannot be carried out, there are gymnasiums to which one may go; also, indoor exercises which may be practiced.

The person who is constipated, and especially the constipated person who lives a sedentary existence, certainly needs to exercise, if cure is to be won. Practically any form of exercise which is followed regularly and adequately will be useful. There are, however, a number of exercises which are of especial value for constipation. Among these are rowing, swimming, horse-back riding, mountain and hill climbing, bicycling, tennis. Even a brisk walk of a mile or two, once daily, even less frequently, is sufficient for many. Walking is particularly valuable for office workers. Naturally, the more enthusiasm in the exercise the greater the good effects, though one may profit, at least physically, even if enthusiasm is absent.

If, for one reason or another, outdoor exercises cannot be practiced, use should be made of suitable indoor ones. The great objection to indoor exercises is that they are rarely followed for any length of time; the individual may take them up

with enthusiasm, but as a rule the latter soon wanes and dies, likewise the exercises. For this reason, instead of practicing exercises at home, it may be well for the sedentary to join an athletic club, or some organization where profit may be made of suitable exercises given under skilled direction, and where interest is apt to be maintained by reason of companionship. The cost is trifling, and the benefit that will accrue is well worth it.

In the privacy of the home one may carry out any number of exercises which are of value in constipation. Among the best are the indoor rowing machine, and bicycling on a stationary bicycle. Or one may purchase a trapeze or swinging rings, the cost of which is small. Exercise on these for five or ten minutes morning and night will be curative in many cases.

There are a number of simple exercises which necessitate no apparatus, and which, if consistently practiced, will do as much for constipation as those already mentioned. They require but a few minutes, so that the objection many people offer to exercise, namely that they have no time, does not hold good. A few minutes devoted to them morning and night will provide the body with exercise sufficient for general needs, and will, at the same time, help to restore in-

testinal health. We particularly commend the following:

1. Jump rope—just as little girls do—morning and night for five or ten minutes. It may be interesting to note that Marshal Foch is said to spend a few minutes each morning, before breakfast, at this exercise.

2. Stand with feet spread apart, hands on a level with the shoulders. Twist the body as far as possible to the right, keeping the knees stiff. Then twist as far as possible to the left. At first this exercise should be practiced a half-dozen times each way. It may cause some soreness at first, but this will wear off, and one will soon be able to twist thirty or more times each way without discomfort. It is best that the clothing be loose. The most suitable time for it is after arising.

3. Stand with feet together, hands on hips, Keeping the knees stiff, bend forward as far as possible; return to the erect position. Then bend backwards as far as possible. Repeat a number of times.

4. Stand with feet together, hands extended above the head. Without bending the knees, try to touch the floor in front of the feet with the tips of the fingers. Repeat ten or more times.

5. Stand as in No. 2. Bend, sideways, to the left as far as possible, then to the right. Repeat.

In chronic constipation, obesity, nervousness, lax abdominal walls, it is advisable that exercises which strengthen the abdomen be practiced. The following will be found valuable in this connection:

1. Place the clasped hands upon the abdomen. Take a deep inhalation, slowly; at the same time press the hands deeply into the abdomen. Exhale, releasing the pressure of the hands. Repeat a number of times. This is a good exercise on awaking, and while at stool.

2. While holding the breath, push the abdomen as far forward as possible, and hold it forward as long as is comfortable. Then draw the abdomen in as far as possible, and hold it. Repeat a number of times. This exercise can be performed while walking on the street, or while at one's desk.

3. While in bed, breathe deeply for a minute or two, endeavoring to raise a sandbag weighing about ten pounds which has been placed on the bared abdomen.

4. Lie on the back, feet together, hands behind the head. Without bending or moving the lower limbs, or using the hands, try to rise to a sitting posture; do not roll over on the side.

Repeat five or more times at first; later increase the number of times. This is an exercise suitable on awaking and on going to bed.

Any exercise which requires effort will necessitate a greater use of the chest muscles. However, deep breathing is of itself an excellent exercise for constipation. It expands the lungs fully and aërates them; it depresses the diaphragm, forcing food from the stomach and waste along the intestines; it massages the liver, and accelerates the circulation in this and in other abdominal organs. Not a few people, especially those who spend the greater part of their times indoors, find deep breathing of value in compensating, to some degree, for the outdoor benefits they are denied.

To be of most service, deep breathing should be practiced several times a day, preferably in the open air or before an open window. It should be slow and regular; when hurried and jerky it is not apt to do much good. A good method is to close one nostril with the finger pressed against the side of the nose. Then breathe through the open nostril. Holding the breath, transfer the pressure to the other nostril. Breathe out through the open nostril. Repeat a number of times. At first the rate should be about three or four deep breaths a minute; the



number may be gradually reduced until only two deep breaths are taken a minute.

### *Massage*

If, because of invalidism or some other good reason, it is not possible to take active exercise, use should be made of passive exercise, or massage. Sometimes massage is all that is required to cure stubborn constipation in persons who are not invalids, though, as a rule, it is not successful unless other measures are employed. Massage is helpful because it mechanically forces waste from the abdominal organs, including the intestines. It has, also, a stimulating influence on the nervous system. Unless it causes noteworthy pain, or inflammatory conditions exist, it is generally practicable.

Massage is best carried out by a trained masseur. However, there are several ways in which it can be performed at home. A good method is as follows:

Press the balls of the fingers of one hand deeply into the abdomen, commencing low down on the right side. Keeping the fingers pressed deeply, bring them slowly and firmly, in a rotary fashion, up the right side to the lower border of the ribs. Then bring them across the abdomen to the left side; then down the left side.

Follow by a gentle kneading of the entire abdomen. The abdomen should be relaxed; the breath should be held, and the knees should be drawn up. The massage can be best employed while undressed and in bed. Five or ten minutes given to massage morning and night will be sufficient.

Kneading the abdomen while at stool often does good. One may employ the procedure above mentioned. Or the fist may be firmly pressed into the abdomen, the left side preferably, while straining.

Massage with the cannon ball helps many. The ball should weigh five or ten pounds. It should be rolled gently over the relaxed abdomen, first up the right side, then over the stomach, then down the left side, followed by a rolling of the entire abdomen. A large, wooden ball may be used if preferred.

The shot bag is also beneficial. It consists of a bag of lead shot weighing ten or more pounds. It may be placed on the abdomen while one practices deep breathing; or it may be fixed to the abdomen, on the left side, for a half-hour. A sandbag is as effective.

Electrical massage is not very useful, at least when applied at home by the unskilled. The

faradic current is most often employed, but the stimuli, when given externally, are usually too feeble to have any marked influence upon the intestines.

## CHAPTER VIII

### EATING HABITS

They are as sick that surfeit with too much, as they that starve with nothing.—SHAKESPEARE.

IMPROPER eating habits are responsible for most cases of indigestion and for a great many cases of constipation. When indigestion exists constipation does also, as a rule. At times the constipation is the cause of the indigestion, in which case the removal of the constipation is all that is necessary to restore the stomach to a healthy condition. On the other hand, the whole gastro-intestinal tract may become disordered because digestion begins improperly. And the cause of the latter is under the control of the individual, since, in most instances, it is due to neglect of those factors which favorably influence digestion.

If we are to digest food well, it is first of all necessary that the mouth be in a healthy state. When the mouth is not properly cared for, the teeth and the gums become diseased. This indicates that the teeth and gums have become

infected with bacteria, and as a result of the activity of the bacteria various poisons are formed which are swallowed with food and drink, or which are forced directly into the blood vessels during the act of chewing. Diseased oral states are often the unsuspected causes of many ills, as rheumatism, neuralgia, insomnia, painful feet, nervousness. They are at fault in many indigestions, especially indigestions of the fermentative type. The indigestion is brought about in many ways: the bacteria and their poisons coat the food and prevent the latter from being adequately digested in the stomach; normally the saliva has an alkaline or neutral reaction, but when the mouth is diseased, the reaction becomes acid, thus preventing the saliva from digesting starches and sugars; the painful teeth and gums prevent proper mastication, this being in itself a cause of dyspepsia.

It is certainly necessary, if we are to enjoy good health, that the mouth be kept in a sanitary condition. This can be effected by employing the tooth-brush after every meal, and by consulting a good dentist at least once a year, whether such seems to be necessary or not. When the mouth is definitely diseased, nothing outside of skillful treatment by a dentist will restore it to a state of health.

Regular hours for eating are a great aid to digestion. At the accustomed meal hour an abundant flow of gastric juice occurs. This is occasioned by psychic influences, the mere thought of food, when one is hungry, being sufficient to excite the gastric glands into activity. If the meal is postponed, the juices which have been poured out in anticipation of the coming feast are wasted; the entrance of food later will, it is true, call forth a flow of digestive juices, but these are not so potent or so abundant as when the meal is taken with unvarying regularity. Many persons who are accustomed to eating dinner at a certain hour on week days, but who eat at a later hour on Sundays, often have blue Mondays; they feel heavy, unfit for keen mental or physical work. This could be avoided by eating at the same time daily, irrespective of holidays. Again, when a person eats at irregular times, the stomach is apt to be overworked; in these cases, food is often eaten when the preceding meal has not had time for satisfactory digestion. Like the other organs, the stomach needs its quota of rest.

One's mental attitude at table has a great influence on digestion. Hufeland wrote long ago: "Laughter is one of the greatest helps to digestion with which I am acquainted, and the



custom prevalent among our forefathers of exciting it at table by jesters and buffoons was founded upon true medical principles." Of course, hilarity at table is unseemly, but etiquette does not frown upon good cheer. It has been amply demonstrated that a cheerful mental attitude at meals increases the flow of digestive juices; a pessimistic frame of mind causes the reverse. Meal time is decidedly unsuitable for a discussion of domestic, business, or other weighty problems; not only should we not talk about them, but even thought of them should be tabooed. If one feels constrained to brood about his difficulties, then he should, at least for his stomach's sake, choose a time that is well-removed from the meal hour. Let us not be afraid to laugh, even if it hurts at first; to be thankful for what we have and for what we haven't. If so, good digestion will wait on appetite, and health or both.

The fact that worry checks the formation of gastric juice, and the movements of the stomach and intestines, should be sufficient to induce the chronic dyspeptic to cease brooding about his impairment. Most dyspeptics continually dwell upon their aches and pains; their infirmity is their first thought in the morning and their last thought at night. They are constantly airing their

troubles, providing those who do not see them first, and who therefore cannot escape, with gratuitous and dirgeful organ recitals. Rarely do they approach the table without preconceived notions that such and such foods will hurt them; in fact, they have their doubts about all kinds of food. These actions and ideas are not compatible with the stomach's best efforts—one cannot expect his automobile to go if he slams on the brakes at the same time he throws in the clutch; and if indigestion is maintained, it is not surprising.

If one has indigestion the best he can do is to observe, and not too carefully, such hygienic rules as tend to improve digestion. The stomach cannot be worried into a state of health, though it can be into the opposite. What most chronic dyspeptics need is more confidence, more aggressiveness. Usually, the dyspeptic so wheedles his stomach by trying out all kinds of diets and régimes, and by omitting foods thought to disagree, that the stomach lies down on the job, becomes lazy, and makes a fuss whatever it receives. Most of the foods which the dyspeptic think are harmful agree with them just as well as the foods which are deemed digestible. Having indigestion, the dyspeptic tastes a certain food long after he has eaten it,

and he fastes it because he belches so much; he assumes that this food is the cause of his trouble, and ostracizes it from his diet. The same thing happens with other foods, so that, after a time, very little is eaten, and even this causes pain.

A trouble that causes dyspeptics great concern is fermentation, also gurglings in the intestine that may be so loud as to be heard at a distance. It is true that fermentation of foods may give rise to gas, but gas formation occurs very slowly, and rarely, if ever, in such large amounts as the dyspeptic belches forth. Frequently the "gas" is swallowed air; the dyspeptic has fallen into the habit of belching, and by repeated efforts in this direction he swallows more air than he expels. Again, the great compassion the dyspeptic has for his stomach, and for himself, may so unfavorably distend the stomach and intestines as to cause gas production. The influence of emotional states, especially compassion, on the intestines has been known from earliest times; for instance, the old Hebrew prophets employed the term "soundings of the bowels" (*borborigmi*) as synonymous with compassion—"Where are the soundings of thy bowels toward me?" "My bowels shall sound like a harp for Moab." However, it is not compassion for others that causes the "sound-

ings" of the dyspeptic's bowels, but unceasing compassion for himself.

If the chronic "nervous" dyspeptic would throw his worries into the waste basket, cease making a bore of himself by talking indigestion to everyone he meets, and eat heartily of the foods set before him, he would, in a short time, find himself cured or markedly benefited. Of course, he may have some pain for a few days, which is only natural considering the weakened state the stomach is in as a result of insufficient use; with persistence, however, the pains will disappear, and in their stead will come good digestion.

Of very great importance for proper digestion is adequate mastication. As before stated, the saliva contains agents necessary for the digestion of starches and sugars. Unless the food is chewed well, it becomes coated only, and not permeated by, the saliva, the result being that the starches and sugars ferment in the stomach. Though the stomach is principally a meat-digesting organ, the digestion of starches and sugars goes on for at least a half-hour after the food enters the organ, and such digestion is missed unless mastication is sufficient. The stomach has no teeth, and so, if one swallows hurriedly, the digestive juices cannot break up

the hard, lumpy masses. Again, if food is not adequately torn apart, the activity of pepsin is impeded. Maxwell has found that cooked farinaceous foods, as rice, potato, porridge, hinder the digestive action of pepsin if they are not first subjected to thorough mastication. Consequently, one who bolts his food not only flirts with carbohydrate indigestion but also with proteid indigestion. Another good reason for sufficient mastication is that it aids the utilization of food. Foster and Hawk have discovered that the utilization of protein was most complete as a result of good mastication, and least complete as a result of bolting. Other investigators have reported that the utilization of vegetables and cereals was apparently improved by proper mastication.

Probably the best argument for adequate mastication is that, coincident with it, there occurs a flow of gastric juice. Professor Carlson has shown that the gastric glands are never idle; that even at rest, so to speak, there is a continuous secretion of gastric juice varying from two to fifty cubic centimetres (30 to 750 drops) an hour. During the mastication of acceptable food, the average rate of gastric juice production is three and one-half cubic centimetres a minute. On cessation of chewing, the rate

diminishes rapidly, so that in from fifteen to twenty minutes after the cessation of chewing the gastric glands reach the level of their continuous or "at rest" secretion. This physiologic fact should be made use of by all, but particularly by the dyspeptic who suffers from a deficiency of gastric juice.

Proper mastication does not mean chewing until the jaws ache nor for a certain number of chews. Overmastication is as much an extreme as undermastication. Simply be sure that the food is well chewed. If a person masticates well but grouchily, he may do himself more harm than good, since the unpleasant mental attitude acts as a check to stomach activity. It may require a little time at first for a person who has been accustomed to bolting, but with practice one will soon learn to masticate well with scarcely any conscious attention.

Overuse of tobacco, chewed or smoked, and the use of tobacco shortly before meals, not infrequently cause indigestion, also other troubles, as pain about the heart, dimness of vision, nervousness. This applies to the pipe, as well as the cigar and cigarette. Many persons find that a smoke after meals aids digestion and the movement of the bowels. If used moderately, there is no objection to its employment at this time.



If a person is dyspeptic and has been using tobacco freely, the only practical way for him to find out whether or not tobacco is causing the dyspepsia is to omit using it or to cut down the amount. It is rarely that a person habituated to tobacco gives it up entirely. The best advice is to limit the amount, and to avoid using it directly before meals. The wise smoker will also avoid smoking his cigar or cigarette too thriftily, that is to the very end. Tobacco smoke is more harmful under such conditions. Long pipes are recommended for pipe smokers, and it is advised that the cigar and cigarette be thrown away when three-quarters smoked. This may seem waste, but it is more than compensated for by the less harmful effects on health. A pledget of cotton in the stem of a pipe, or cigar or cigarette holder, absorbs a certain amount of nicotine.

Gentle muscular exercise for fifteen minutes after meals aids digestion in many instances. However, if the exercise is prolonged or excessive it may defeat the purpose for which it was intended, because it may divert blood from the digestive organs. On the other hand, many persons find a rest after meals very beneficial. It is said that John D. Rockefeller used to lie down for a half-hour after lunch. Dr. Lyman

Abbott for many years took a half-hour's rest before and after meals. The good effects of the after-dinner cigar are, in many cases at least, due solely to the mental and physical rest taken with it.

Whether we take more or less absolute rest after meals, it is certainly inadvisable to engage in laborious physical or mental work within a half-hour after meals. It is also inadvisable to take the heaviest meal at noon, unless we can take things easy for some time afterwards. The stomach requires several hours for food digestion; eating a heavy meal at noon, and then rushing off to work, lengthens the time of digestion and detracts from the quality of one's work. Preferably, the heaviest meal should be taken in the evening, when there is apt to be ample time to rest after it.

One's diet should be selected according to his mental and physical condition, the season, the occupation, the weight, and the age.

If one is very much fatigued he should rest before eating, or eat very lightly, choosing vegetables and fruits that are easily digested. Physical fatigue means stomach fatigue, and if a full meal is taken, digestion tends to be imperfect.

It is not wise to eat shortly after a period of excitement. Otherwise digestion may not be

carried out properly, owing to the fact that the stomach's movements and the gastric juices were checked by the emotion. Food introduced into the stomach following an emotional upset often causes cramps, nausea, vomiting. If one cannot content himself with water, or will not wait until the mind has become perfectly tranquil, only a small quantity should be eaten, such as a few crackers, some lettuce, weak tea or beef juice.

In very hot weather the intake of food should be reduced, since there is not as much need of heat as in the cooler months. Particularly is there less need of such heat-producing foods as meats, beans, peas, lentils. Sugars should also be reduced.

Persons who employ their muscles actively can utilize more food than those who do not. There is a common notion that brain workers require considerable meat; this is erroneous, and it is usually because too much meat is used by these persons that they suffer from headache, drowsiness, and lethargy. What the brain worker really needs is less hearty food, more vegetables and fruits, and more exercise. The idea that fish is a brain food is a mistake; it is no more so than other meaty foods.

Those who are overweight had better see to

their diet at once, if they wish for longevity. Overweight after middle life is not healthful, and renders one a poor life insurance risk. Overweight is, of course, due to many causes, but it is often caused by overeating. It is frequently amenable to diet and exercise. Fattening foods should be lessened; in their place, foods that will satisfy hunger but be of less nutritive value should be substituted. As a rule, foods opposed to constipation are of this class.

Underweight is, at times, an unhealthful condition, though not as much so as overweight. Those who are underweight will often gain in flesh by observing the rules of personal hygiene in general, by drinking water freely, by maintaining a correct posture, by gentle exercise in the open air, and by eating liberally of foods such as milk, sugar, and starches. Forced feeding is not advisable.

As a person grows old the diet should be modified; otherwise, many ills may occur which may be erroneously charged to senility. After the age of forty the amount of food required is, measured in calories, about half that of young adult life. In particular there is less need of meat, and more need of vegetables, fruits, whole wheat, bran and graham breads, and cereals.

Most people eat too much. This is the case

with meats. Much meat, much poison. Meat should not be eaten more than once a day, and then sparingly. Its place should be taken by other foods that are as hearty, as beans, peas, cheese. Excessive meat eating is responsible for many of the ills ascribed to constipation. When the latter exists, it is especially recommended that meat be eaten very sparingly; in fact, it is often wise to omit meat for a time. There is little danger of losing weight and strength by cutting down the meat intake. It is really remarkable how little protein the body requires. One can easily prove this point by reducing the amount of meat he has been customarily allowing himself and by substituting other foods.

Many of us overeat of certain foods such as potatoes, white bread, polished rice. These foods are overeaten because, in many instances, they form the bulk of the diet. It has been recommended that we leave the table feeling as if we could eat more, but this is not necessary. Small amounts of the above-mentioned foods may be used regularly, but they should not be employed to produce the sense of satiety; the hollows should be rounded out with foods like vegetables, fruits, whole wheat bread.

Variety in diet is a matter of importance. If the individual himself tires of monotony, so does

his stomach. Again, when the diet is monotonous, one is apt to deprive himself of certain essential food elements called vitamins. More will be said of these substances in the next chapter.

Many persons use too much sugar. The war showed us how well we can preserve health, indeed improve health, with less sugar. There are comparatively few of us who would not benefit were we to employ sugar as sparingly as we did in war-time. One spoonful of sugar in tea and coffee, and on cereals and fruits, is surely sufficient.

Whether one should eat before going to bed is a question that often comes up. Eating before retiring adds to the number of hours slept, but it is rarely harmful. Many insomniacs find that a glass of milk, a cup of cocoa, or a few crackers at bedtime help them to woo Morpheus. Of course, heavy meals should not be eaten just before bedtime.

If one has a cast-iron stomach, he may be able to digest hot foods and greasy foods. However, it has been shown, and it should be a matter of personal experience, that the stomach takes more kindly to breadstuffs that are a day or two old. Without doubt, the frequent use of hot buns, hot pancakes, and hot breads has ruined many a digestion. If dyspepsia exists, it is particularly



wise to eschew these foods; if we had a lame arm we would favor it; we owe the same consideration to a lame stomach.

It is well known that fats tend to delay digestion. Consequently, a dyspeptic should omit fried and greasy foods, salads rich in oil, very fat meats. Good butter, in moderation, is usually tolerated. Some dyspeptics find that they can digest fats when the latter are well mixed with other foods, as butter melted on toast; buttered, mashed, baked potato.

As to tea and coffee: If properly prepared and used temperately they are not harmful to most persons, though tea may be objectionable in constipation because its tannin acts as an astringent. Both tea and coffee should be freshly prepared. Tea should be made by infusion; if boiled, or if the tea pot is permitted to stand on the back of the stove for any length of time, a considerable amount of tannin is extracted. It may be well to remember that Indian and green teas contain more tannin than China or black teas. Paraguay tea, though containing some tannin and some caffeine, is said to possess valuable thirst-quenching properties and to have no tendency toward producing insomnia. It comes in leaves, also in powder form. From ten to twelve grams will make a quart of tea. The tea should

be made by infusion, and should stand for ten minutes. If it has a slight smoky taste which is objectionable, it can be improved by parching the herb in the oven. Its taste is agreeable to most persons. It may be drunk hot or cold, sweetened or unsweetened, with or without lemon juice. It is comparatively inexpensive, and the grounds may be used over again if desired.

Tea and coffee when abused often promote indigestion. This is partly because the tannin coagulates the digestive ferments and irritates the lining of the stomach. Another reason is because the beverages are swallowed when too hot, and habitually so; the same may be said of soups. Many of the fluids taken into the stomach would cause discomfort if placed on the skin; the stomach, being more sensitive, cannot but be unfavorably affected. Prudence dictates that fluids be taken lukewarm, or if hot, at the end of a meal, not between meals. This is particularly enjoined upon dyspeptics, many of whom have been cured by lessening or omitting their intake of hot fluids.

Condiments such as pepper, mustard, spices, should be used sparingly, if at all. They not only prevent one from appreciating the natural flavor of the food and unduly excite the mucous mem-

branes of the mouth and stomach, but also tend to make the individual eat more than is necessary. Sometimes we are justified in being suspicious of highly seasoned foods, and in presuming that the seasoning has been added to hide the food's poor quality.

Without doubt there are some foods which do not agree with certain persons. But before omitting any food from the diet one should be certain that it does really disagree. Sometimes the stomach becomes upset, probably because of fatigue or emotion, and it is thought that a certain food which may have just been eaten is causative of the dyspepsia. Under the circumstances, practically any food might disagree; therefore, unless frequent similar experiences have shown that a certain article is not tolerated well, it should not be hurriedly ostracized from the diet for all time. Many persons who do not digest fruit, such as bananas, owe it to the fact that they choose fruit which is not ripe enough, or they add too much sugar to it. Nuts are thought to disagree when, in many cases, they would be well borne if adequately masticated. Milk is often tolerated when taken with seltzer, or a pinch of salt; also, when boiled, or when not mixed with other food.

Very often raw eggs are taken as food. It

may be well to mention that raw eggs are only half-digested, the undigested portion putrefying in the intestines. Eggs are better digested and utilized when soft boiled, scrambled, or made into omelettes.

Dietetic fads, as the nut diet, the fruit diet, vegetarianism, should be avoided, unless a competent physician advises them for a limited period. Taken under self-direction, dietetic fads may cause great harm, even death. If a person wishes to try a "fasting cure," he can do so safely in the following way:

For four or five days the person should confine his diet to raw fruits, or to raw vegetables, or to cooked vegetables, or to a mixture of all three. Among suitable fruits, we might mention bananas, melons, apples, oranges, grapes, cherries, pears, figs, dates, plums, peaches. Among vegetables, lettuce, tomatoes, celery, cucumbers (in small amounts). Among cooked vegetables, cabbage, turnips, spinach, kale, beet tops, dandelions. Three or four meals should be taken daily, and the food should be well chewed. In addition, one may take several tablespoonsful of bran or agar, with or without petrolatum, twice a day. As a rule, such a diet will cause free movements within a few days. After movements occur, the diet should be increased, meats

being added in small quantities at first. A diet like the above should not be maintained for more than a week.

Many dyspeptics have found a régime similar to the above very beneficial, and resort to it whenever they feel a return of their impairment. It is also very valuable in beginning treatment for constipation, especially constipation of long-standing.

While there are individual variations, experience has shown that in most cases of constipation the following foods should be avoided, or limited, until cure has been obtained.

Eggs, except in small amounts and then scrambled; sweets; pastry; rice; sago; cheese; liver; strong condiments; milk, as a drink; meat extracts; newly-made bread; fried foods; richly seasoned foods; thick gravies; strong tea, especially strong tea and meat at the same meal; cocoa; chocolate; dried beans; coffee, unless personal experience has shown it to have laxative action. Indigestible foods, or foods digested with difficulty, as steaming bread and buns; greasy foods of all kinds; improper combinations of foods, as ice cream and oysters, sweets and acids, melons and liquor, are also to be avoided.

## CHAPTER IX

### DIET

Moderation is the best temperance,  
Temperance is the best diet,  
Diet is the best doctor.

—LORENZO.

A SUITABLE diet is by far the most important means by which constipation can be routed. It is necessary, therefore, that those seeking a cure so alter their diet that it favors intestinal health.

The object of the dietetic treatment is to supply foods which, while sufficiently nourishing, will leave an adequate amount of indigestible residue, and stimulate the intestines by their physical or chemical properties. The selection of the right diet is not difficult. It simply asks that among the foods one eats daily there be those that have a laxative effect. There are many of these foods, the most valuable of which we shall discuss.

### VEGETABLES

Vegetables are popularly regarded as blood purifiers. If they influence the blood, it is not



directly, but in so far as they keep the intestines active, and thereby prevent such disturbances as may arise from constipation. Again, one who eats liberally of vegetables ingests less of meats and of other foods which, when taken to excess, tend to favor putrefaction in the intestines.

A diet which is partial to vegetables is beneficial for many reasons. For instance, it lessens any tendency to obesity, disease of the arteries and of the kidneys. It is also the most suitable diet for the sedentary, for brain workers, for those past middle life. It is not going too far to state that if we ate more vegetables and less meat our national health, efficiency, and longevity would be markedly improved. Of course, strict vegetarianism is inadvisable. We require three kinds of food—proteins, carbohydrates, and fats; and though vegetables contain these in varying amounts, their protein and fat contents are usually small. If we are to obtain our requisite supply of protein and fat, we must partake regularly of such foods as have them in sufficient amounts, as milk, meat, fish, cheese, butter, eggs. Our failing is that we eat too freely of foods of high food value and not enough of foods of less nutritive worth but necessary for intestinal activity. It is this habit which needs correction, and it can be corrected easily by limiting the intake

of so-called hearty foods and increasing the supply of other foods.

Vegetables are rich in vitamins, of which more will be said later. It is from vegetables also that most of the iron, calcium, phosphorus, and other mineral salts useful and needed in the human economy are naturally found. These salts are present in comparatively large amounts in most green vegetables and in peas and beans. Unfortunately, most of us derive less benefit from vegetables than we should because of faulty cooking. For instance, potatoes lose about one-fifth of their minerals when peeled before boiling. Spinach loses about one-half of its iron when boiled instead of steamed. Cooking in open boilers also causes a loss of salts, as well as of nutriment, by evaporation. It is wise to cook all vegetables with their skins on, if possible, and to use double boilers. Prior to cooking, the vegetables should be washed thoroughly, and only clean, pure water should be used in the cooking. The water left after cooking should not be thrown away, but should be employed in making soups, gravies, sauces, etc.

A person who eats vegetables daily, and who makes good use of the water in which the vegetables are cooked, rarely has need of tonics containing lime, phosphorus, iron, and the like. In

adult life the necessity of these salts is not great, and the average diet generally furnishes them in adequate quantities. In childhood the physical and nervous structures are growing, and comparatively more of the salts is indicated. The salts are best obtained from vegetables, milk, fruit, and in suitable cases from fresh, lean meat, rather than from medicines.

A number of vegetables exert laxative effects. Of most value in this respect are fresh greens, as dandelions, spinach, kale, turnip tops, beet tops. If the greens are cooked until they are soft and are then chopped fine, their food and laxative properties are enhanced. Rhubarb is laxative, but its leaves should not be eaten inasmuch as they are poisonous.

Among other laxative vegetables are tomatoes, salsify, cabbage, lettuce, asparagus, celery, corn, beets, squash, pumpkin. Boiled Spanish onions are very useful. Cucumbers are laxative because of their seeds largely; they are indigestible, however, and may cause dyspepsia, especially when eaten heartily and when not masticated well.

Potatoes often favor constipation. This is more true when they are used routinely three times a day, and when a fairly large quantity of other starches is eaten at the same time. The

starch contained in potatoes is the hardest of all starches to digest, though the normal stomach is able to digest it if not present in large amounts. Some digestive disturbances are doubtless due to overeating of potatoes or to poorly-cooked potatoes; in some instances, indigestion is cured or greatly benefited by limiting the potato intake, or by omitting potatoes entirely from the diet; again, by not eating potatoes and other starches, as white bread, at the same meal. Potatoes leave a small amount of waste and are, therefore, not advisable in every meal when constipation exists.

While dried beans—kidney beans, yellow eyes, navy beans, etc.—and peas, have much nutritive value, they may aggravate constipation when eaten freely. They also tend to putrefy, and are rich in purins. In small amounts they are not objectionable; when used, considering their high protein content, the amount of other hearty foods eaten should be reduced. They are not advisable for use as the main portion of successive meals; this imposes quite a task on the digestive organs and putrefaction is apt to occur. Persons who have lived largely on other hearty foods may find that replacing such foods by peas and beans is remediable in constipation.

With so many vegetables to choose from and with so many good reasons why vegetables should

be used daily, there is much wisdom in having two different vegetables at at least two meals every day. In the summer months most people find it easy to carry out this advice, and are glad to; in the winter, when a variety of fresh vegetables is not obtainable, fewer vegetables are eaten, and the diet tends to consist largely of meats, white bread and potatoes, which are constipating. However, even in winter there are many laxative vegetables procurable, as cabbage, onions, turnips, squash. The far-sighted person will, in times of plenty, put away certain of these vegetables which keep well for winter use. In season, cabbage, onions, squash, pumpkin are cheap, and with comparatively little care can be kept in the home all winter; by doing this one also practices thrift.

Canned vegetables are not as rich in food or laxative value as fresh or uncanned vegetables. Moreover, their cost is relatively great. The high temperatures to which they are exposed for canning purposes, and the loss of salts in the water, subtract from their value. However, when fresh vegetables are not procurable, canned vegetables are preferable to none. Dried vegetables, while possessing some food value, are not very laxative.

In connection with the use of canned or

preserved food, it is wise to be certain that these are free from objectionable odor, however slight. If they smell acid or sour, they should be thrown away, without tasting. In this way one will avoid the possibility of botulism or food poisoning, which sometimes causes fatal illnesses.

Botulism receives its name from the bacillus botulinus which was first discovered in sausages. It is most likely to grow in canned or jarred food, especially food canned or jarred at home. This is because the housewife may be careless in bringing the food up to the proper heat before canning; also, because the cans may not be sealed properly. The germ itself causes no symptoms when ingested, the harm being wholly due to the poisons generated by the bacteria. Heat will destroy the bacteria and their poisons, so that if canned food is brought to the boiling point before being eaten it is practically free from poisons.

The number of fatalities which have occurred from food poisoning should stimulate the housewife to be very careful about the foods she cans. While commercially canned foods may be at fault at times, there is more danger from the home canned foods, since the large concerns are thorough about the canning process.



## FRUITS

Many fruits are laxative and are of food value. In some persons, however, fruits cause indigestion. This may be overcome in many instances. For example, if fruits cause indigestion when eaten at meals they may be well borne if eaten only between meals, and when well cooked. Cooked fruit is more easily digested than raw fruit, and its laxative action is not impaired by cooking. Sometimes an excessive amount of sugar is added to cooked fruit in order to make it palatable; this may occasion flatulency. A little bicarbonate of soda will offset this disadvantage. In cooking fruit it may be advisable to cook without sugar; this will lessen any tendency to fermentation, since less sugar will be required to make the fruit tasteful.

Raw fruits possess certain advantages over cooked fruits. For instance, the flavor is more appreciable, and the food vitamins are not destroyed, as is sometimes the case with cooking. When dyspepsia exists, raw fruits are likely to disagree. In these cases, they may cause no trouble if eaten between meals. Sometimes the indigestion is due to the insufficient mastication the fruit receives, also to eating unripe fruit. Large amounts of raw fruits are not generally

advisable in constipation because they may produce indigestion, and the latter may aggravate the constipation. It may be well to mention that some dyspeptics find pineapple eaten raw, morning and night, an aid to digestion.

Most fruits are useful in constipation. Exceptions are huckleberries and persimmons. Bananas are, probably, constipating in the majority. When well borne, they possess high food value. They should always be quite ripe before being eaten.

Fruit is more laxative when eaten between meals. It thereby enters the intestines more promptly, because it is not held back by admixture with other food. Followed by a glass of water, its action is accelerated. Very often persons who do not procure laxative effects from fruit eaten at meals will obtain results when the fruit is eaten between meals, or a half-hour or so before meals. If it is inconvenient to eat fruit between meals, the next best time is at the beginning of the meal.

Figs, as well as dates and plums, are valuable laxatives. A few figs eaten between meals or at bedtime, followed by a glass of water, will often keep the bowels regular. The habit of carrying a few figs in one's pocket, and eating them an hour or two before lunch or dinner, is recom-

mended for the constipated business man. Imported figs seem to be more effective than domestic figs, though the latter are very useful.

An orange before breakfast, or half a grape fruit, or a baked apple, maintains the intestinal health of many persons. Fruit the first thing in the morning often works better than when it is taken later in the day.

Exhausted orange peel was used by the French during the war as a substitute for agar, and with good results. It is made by boiling fresh orange peel in water for a half-hour. The water is then drawn off; it may be used as a dentrifice or for flavoring. The peel is again boiled in fresh water, slightly sweetened, for thirty minutes. The water is drained, and the peel dried on a plate. The peel is then ready for use. Exhausted orange peel is a stimulant to the liver as well as to the intestines. Instead of throwing orange peelings away, the constipated person might profitably make use of them in this fashion.

Prunes make an exceedingly useful laxative. One may best utilize them by soaking a half-dozen of the best California prunes overnight in clean water. The prunes may be eaten at one time or at different times in the twenty-four hours. Before breakfast and at bedtime are the recommended periods. They should be followed

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by a glass of water. As the bowels regain natural activity, the number of prunes eaten may be cut down if desired.

If a person has a profound regard for drugs and cannot be persuaded to do without them, one of the simplest may be used in the following manner: Steep five cents' worth of senna leaves in a quart of water. Allow to cool. Add a pound of the best California prunes which have been washed. Cover and allow to stand overnight. Keep in a refrigerator. Eat six prunes each night, followed by a glass of water, and gradually reduce the number eaten as laxative action is restored.

Fruit is laxative in practically any form—raw, as in fruit salads, or cooked, stewed or baked. Unfermented fruit juices, as grape juice, and apple cider are also laxative. A few drops of lemon juice added to a glass of moderately hot water and taken the first thing in the morning often cause a bowel movement after breakfast.

Fruits are available at all times, if not fresh, then canned or preserved. Though the latter are not as laxative as fresh fruits, they should be used if fresh fruits are not available. Of dried fruits, as figs, prunes, pears, raisins, apples, apricots, peaches, etc., the sun-dried are preferable to the sulphur-dried.

As with vegetables, fruits should be used every day, preferably at every meal. Besides being laxative, they furnish the body with various acids, and food substances. They are also excellent cleansers of the teeth. It is rarely that they are abused; in fact, they are not eaten freely enough.

### RAISINS

Raisins in moderate amounts have some mild laxative action. When eaten liberally they may set up a diarrhea, probably because some of their indigestible residue remains in, and irritates the intestines.

Parenthetically, it might be stated that advertising propaganda designed to have us eat more raisins because raisins are an "iron food" should not be taken seriously. The body requires but a small amount of iron daily, about 15mg. or 0.175 of a grain; and if our usual diet is varied we are practically sure to obtain this amount and more. It has been estimated that if all the iron in one's body were to be collected there would only be enough to make an average-sized nail. To take iron in excess of our needs is not desirable, since the excess remains unused and is excreted. Were we to depend upon raisins alone for our iron supply, it would be necessary to eat a pound and a half of raisins a day. As sources of iron, such

foods as spinach, eggs, peas, beans, dates, currants, meats, to mention but a few, deserve as much, if not more, emphasis than raisins. There is no satisfactory evidence that the comparatively small amount of iron in the edible portions of raisins is absorbed and utilized any better than the iron contained in the above-mentioned foods. As a food raisins have some value, but as sources of iron, and particularly as a medicine, they have no special merit. And if we believe that a five cent package of raisins eaten at three o'clock, when "we feel ourselves slipping," gives us more "pep" because of the iron intake, it is a striking illustration of our gullibility, the power of suggestion, and the capacity of the human mind for deceiving itself.

A critical attitude might be taken toward other foods, as well as nostrums, heralded, for sales purposes, because they contain iron. Because metallic iron impresses us as strong and durable that is no reason why such qualities will be ours providing we take iron into our systems. This type of logic is similar to that of primitive-minded peoples who think that they can become courageous by eating the heart of a lion, fleet of foot by eating the legs of a deer, etc. Strength, health, and efficiency are dependent upon many things besides iron; otherwise, for a few pennies



a day, we might purchase at the drug store sufficient iron to make us all physical and mental supermen.

### BREADS

At one time it was thought that when we estimated the available protein, carbohydrate, fat, and mineral salts that a given food contained, we had a good index of the food's nutritional worth. But it has been discovered that other factors must be considered, namely, the vitamins. The latter are substances present in various foodstuffs but of unknown composition and action. So far three distinct vitamins have been described, and there is some evidence that there is a fourth.

The vitamins are specific; that is, each performs a special function in the human economy; all are necessary for good health, and one vitamin will not replace another. When any of the vitamins is absent from the diet over long periods, nutritional disorders arise, such as scurvy, certain diseases of the eye, malnutrition. A marked example is found in beri-beri, a disease characterized by swelling of the limbs and abdomen, polyneuritis, and other disturbances. This malady often develops in persons who subsist largely on a diet of polished rice; those who eat unpolished rice do not, as a rule, have it.

Further, persons who acquire the disease can be cured when they are fed unpolished rice, or rice polishings. This one fact should show us that brown rice is more valuable than white rice; moreover, it is less expensive.

We see that the process of polishing rice removes some of the vital principles (the vitamins) of rice. Many other foods suffer by modern methods of manufacture; for instance, wheat, from which we derive white flour.

Our forefathers submitted their grains to coarse pounding between stones. Later they used a mortar and pestle arrangement. Today, in order to supply the great demand for bread, and also our esthetic tastes, wheat is subjected to elaborate milling. This causes a large part of wheat's dietary qualities to be sifted out or to be discarded. Teller has shown, for example, that seven-eighths of the phosphoric and eleven-fourteenths of the potash and lime salts of wheat can be found in stock feed, the latter being the rejected part of the wheat used in manufacturing white flour.

While it cannot be denied that milling destroys many dietary principles of wheat, including wheat's vitamins, we have no reason for alarm. We are not apt to suffer from deficiency diseases unless we partake routinely of monotonous diets

and of diets poor in vitamins. Vitamins are by no means scarce; they are abundant in milk, leafy vegetables, tomatoes (fresh or canned), cabbage, potatoes, butter, fruits, whole grain cereals, raw foods. Nor is there any call to load ourselves with vitamins, either by eating excessively of foods containing them or by vitamin tablets. Vitamins taken in excess of the body's requirements are not utilized; and many of the advertised vitamin tablets do not live up to the claims made for them. If we fear vitamin deficiency, the best way to avoid it is by having foods which possess vitamins in our daily diet. We might, also, eat some raw foods, as vegetables and fruits, occasionally; it is known that the cooking, as well as the drying, of foods tends to lessen the foods' vitamin content. In winter, when fresh foods are not so available, it will be of help to favor such foods as milk, butter, oranges, cabbage, tomatoes, dates, figs.

As stated, white flour is not perfect, yet we must view it sensibly. Some food fanatics would have it eliminated entirely; they forget, or ignore, the fact that wheat is grown in only a few centres, that it must be transported over long distances, and that it must be kept on hand for months so as to satisfy the market demands; it is necessary, therefore, to remove that part of the wheat which

ferments, in which part are many of the wheat's dietary qualities. Whole wheat flour keeps only a few months, especially in hot weather; whereas, white flour keeps indefinitely. Were wheat grown in almost every State, and were there plenty of wheat-grinding mills, there would be less excuse for white flour, but inasmuch as these Utopian dreams are not very practicable, we must make the best of matters.

There are, however, several useful lessons that can be drawn from modern methods of manufacture. One is that we are carrying our demands for white food a little too far. In some parts of the country, as New York, people will not buy brown eggs; and it has come to such a pass that many manufacturers are bleaching their flours. A food's good appearance and whiteness are conducive to palatability and to a psychic secretion of gastric juice, but they do not certify to the food's nutritive value. Again, while white is symbolic of purity, all white foods are not pure in fact.

The important point about white flour in so far as the constipated are concerned is that it is well-digested and leaves little residue. It does not, therefore, favor bowel action. Consequently, it is advisable that the constipated use breads made wholly or partly of coarse flours, and substitute

these breads for white bread in one or more of the daily meals. There are many flours from which one may select, as whole wheat, graham, corn, rye, barley, bran.

It is sometimes found that bread made from the above flours upsets digestion. In such cases, the cause is not the bran, as some suppose, but ferments contained in the middlings of the flours. This can be remedied by using lime water in making the breads rather than ordinary water. Bread made in this way makes a good appearance, keeps well, and is tasty.

It may be of interest to note that graham bread was invented by the Reverend Sylvester Graham, a New England clergyman, who died about seventy years ago. He claimed that its use cured him of various digestive troubles. Graham bread is not as nutritious as white bread, but because of its bran is more laxative. Dr. Graham's original formula was as follows:

1 teacup wheat flour  
1/2 teacup Porto Rico molasses  
1 cup lively yeast  
1 teaspoon salt  
1 pint warm water  
Enough graham flour to make a dough  
stiff enough to stir.

Mix at night and let rise overnight. In the morning, add one level teaspoon of soda dissolved in hot water.

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Beat the mass again, and pour into greased pans. Let this rise until it reaches the tops of the pans. Bake forty minutes.

### BRAN

Of very great usefulness in the treatment of constipation is bran. Bran was formerly considered as so much waste, and most of it was fed to cattle. Cattle digest it fairly well; its value in keeping the animals healthy is shown in the frequent employment of bran mash for sick animals.

There has been some discussion as to the digestibility of bran by humans. Some food experts have claimed that it is not at all digestible. However, Hindhede maintains that normal persons whom he subjected to extensive experiment digested bran as well as pigs digested it; when the bran was ground fine, they digested it better than cattle did. Von Noorden champions the digestibility of bran, and believes that much of the success of certain drugless healers is due to their extensive recommendations of bran bread. Holmes, in a Bulletin of the United States Department of Agriculture (No. 751) shows that about one-half of the proteins and carbohydrates of fine bran is digested; of coarse bran, one-quarter of the protein and one-half of the carbohydrate.



While there are some persons who digest bran very well and who thrive on it, the majority digest it with difficulty. This is because bran has a tough, woody envelope or covering made of cellulose. The cellulose content of bran is 20 per cent. Ordinarily the cellulose is only slightly permeable by the digestive juices, thus permitting at least half of the ingested bran to serve as bulk to the intestinal contents; evacuation is thereby facilitated.

Bran may be used in various ways. It may be taken with cream or sugar, with cereals, vegetable purees, sauces, soups, etc. It may be taken before, after, or between meals by itself; if moistened it can be swallowed readily. It is best taken with other food, however.

There is no particular amount in which bran should be taken. A tablespoonful three times a day is not too much. While it is generally sufficient in itself, it may be combined with agar or with liquid petrolatum if desired. Sometimes it may be so well digested as to give rise to fermentation; if a reduction in the amount used does not remedy such, bran should be discontinued, and agar or petrolatum substituted. Thin persons may find that it causes a loss of strength, due to frequent evacuations; in these cases, it should be used in the smallest amounts com-

patible with a daily evacuation. Bran lessens the digestion of other foods to some extent, and therefore has some value in obesity.

Bran is in no sense a drug, and may be employed as long as desired. It is not curative; that is, while it will cause evacuations, it does so only so long as the bran is taken. It is advisable, therefore, to incorporate it into breads, cakes, and other foods. Some one article of the diet should contain it daily, and if a sufficient amount of bran-containing food is eaten daily, most cases of ordinary constipation will be removed.

If the bran is purchased in bulk, it should be picked over, washed, and sterilized by cooking. Bran, ready for use, may be purchased at most grocery stores. It is inexpensive. On the packages one will find recipes for making bran dishes of various kinds. If the bran is sifted, and if lime water is substituted for tap water, the dishes will be more pleasing.

The following are a few suggestions:

#### BRAN BREAD

##### No. 1

1½ cups bran  
2 cups graham flour  
1½ teaspoons baking  
powder

##### No. 2

2 cups sour milk  
1½ teaspoons baking soda  
½ cup molasses  
¼ cup sugar  
1½ teaspoons salt

Mix No. 1 thoroughly; then mix No. 2. Mix No. 1 and No. 2 together. Bake slowly in a moderately hot oven for one hour. This makes two moderate-sized loaves. Raisins may be added after mixing.

### BRAN MUFFINS

1½ cups bran	¾ cup milk
1 cup flour	1 dessertspoon molasses
¼ cup brown sugar	3 teaspoons baking powder
¼ cup butter or substitute	½ teaspoon salt

Cream butter and sugar; add molasses, salt, and milk. Sift baking powder in flour, and add flour and bran. Bake in hot oven for twenty minutes. This makes twelve muffins.

### BRAN COOKIES

1 cup bran	1 cup sugar
1 cup white flour	2 tablespoons butter
½ cup graham flour	½ cup milk
1 egg	2 teaspoons baking soda
2 tablespoons dark molasses	½ teaspoon salt

Whip butter and sugar, and the well-beaten egg; then add the milk gradually. Mix baking powder with the bran and flour and add to the above. Mix thoroughly. Roll thin, cut with cookie cutter, and bake in quick oven for ten minutes. This makes two dozen cookies, or three dozen the size of ginger snaps.

### BRAN MACAROONS

1 cup bran	1 tablespoon butter
1 cup white flour	1 tablespoon sugar
1 egg	2 teaspoons baking powder
¾ cup milk	pinch of salt

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Beat together butter and sugar. Add well-beaten egg and milk, and mix. Then add dry materials. Mix thoroughly. Drop batter with spoon in greased pan. Bake in hot oven for about ten minutes. This makes three dozen.

### BRAN MUSH

Mix equal parts of bran and desired breakfast food and cook in the usual way.

### CEREALS

Just as our flours have been robbed of much of their natural ingredients, so have our cereals. Many of the latter are of little nutritive worth. This is an advantage in constipation, however, since the more coarse a cereal is the better it aids the intestines.

Among laxative cereals, Indian meal, shredded wheat, wheaten, cracked wheat, wheaten grits may be mentioned. Oatmeal is laxative when properly prepared. Usually it is underdone, and since the cellulose covering of the grain remains unbroken, the intestines are irritated and bowel action facilitated. This is what is desired, though in some persons it may cause indigestion and skin rashes; even constipation has been known to follow the continued use of undercooked oatmeal. It is important that oatmeal be well done when given to children. The best way, probably, to employ oatmeal for constipation is in the form of a gruel.

When coarse cereals are not at hand, bran may be mixed with the cereal ordinarily used. From one-quarter to one-half cupful may be added. It is a good plan to have a bran bowl on the table always, so that one may mix it with the food as desired; moreover, one will not be so inclined to forget it. There are numerous bran-containing cereals on the market; however, they are comparatively expensive, and for some unwarranted claims are made. Bran may be of service in constipation, but it has no particular value outside of this.

Barley is not very laxative, but it possesses very nourishing properties and is rich in vitamins. In fact, it contains more vitamins than most other grains; the vitamins are present in both the hulls and the kernels. According to Madsen, when the bread rations were reduced in the Danish prisons, barley porridge was substituted; the prisoners gained in weight, even though the diet contained fewer calories than would ordinarily seem to be necessary. Bran added to barley soup, or to other barley preparations, will make a nutritious and laxative dish.

### NUTS

Some nuts are laxative. This is especially true of English walnuts. They are proteins, and ~~which~~

eaten freely there is less need of flesh and of hearty foods in general.

Peanuts, though not nuts but legumes, are also nutritious and laxative. Some laymen believe that raw peanuts, well masticated, are beneficial in hemorrhoids.

### OILS

There are several oils, as olive oil, cottonseed oil, linseed oil, which, in addition to being digestible and serving as nutriment, have a laxative action. If well borne, they are often very useful for emaciated persons. If there is a tendency to obesity, oils are apt to further increase the weight. In diabetes the oils may be imperfectly broken up, and may thereby add to the acid state of the blood.

Fats and oils tend to delay digestion. This fact may not matter materially if the digestion is good, but should indigestion be present, the use of oils may aggravate the dyspepsia, especially amounts of oil sufficient to cause evacuation. In some gastric diseases oils may be advisable; this is a question for the physician.

There are some persons who are unable to take fats or oils in any amount without losing appetite, having nausea, and other disagreeable symptoms. Obviously, the use of fats and oils is un-



suitable in these cases. It is possible at times to become used to oils, and a trial is worth while, especially if one is undernourished. The trial should be made by taking a half-teaspoonful of olive oil several hours before or after meals and gradually increasing the quantity and frequency of the dose as tolerance is acquired.

Oils may be used on salads, or added to other food. To cause laxative action much larger amounts are necessary than can be conveniently taken in this manner. Some persons find that a tablespoonful of olive oil in the morning, or at night, is sufficient for laxative action; others require a larger amount. If large amounts interfere with digestion, it is better to seek some other way of obtaining the result desired.

Rutherford has suggested that cold olive oil be mixed with an equal quantity of hot milk. The emulsion should be drunk at once; if allowed to cool, the oil globules will separate.

Often the oil can be taken when mixed with an equal amount of fruit juice or syrup of lemon. A practical method is to cover the bottom of a glass with orange juice, place the oil over this, and then add more orange juice. A tablespoonful of olive oil night and morning is, as a rule, all that is required. More may be taken, either at one time or in divided doses, if it agrees.

## FLAXSEED

Kohnstamm has proposed flaxseed in the treatment of habitual constipation. At the outset, he excludes all meat from the diet. Fish and poultry are also forbidden. In place of meat, milk, dishes made with milk, cocoa, etc., are substituted. He states that constipation rebellious for years has been overcome in a few days by this diet. After one or two weeks, meat, preferably white meat, is permitted once daily. If flatulency develops, he uses flaxseed, or linseed. The seed may be taken in soups, or alone. Points in favor of the seeds are their absence of taste, and the fact that the intestines do not become accustomed to them. They act mechanically, swelling under the influence of fluids, while mucilage from the seeds serves to lubricate the bowels. He gives, once or twice a day, from two to five tablespoonsful of the flaxseed, or from two to four teaspoonsful of the linseed. The seeds should not be ground nor should they be bitten or chewed.

As a substitute for liquid petrolatum, in piles, and in conditions where liquid petrolatum is inadvisable (mucous colitis, inflammations of the stomach and intestines, etc.), flaxseed tea may be tried. It is made by placing five teaspoonsful of unground flaxseed in a pint of boiling water.

The mixture is then placed on a warm part of the stove, but not boiled, and is allowed to stand for a few hours. It should be strained prior to use. Its taste may be improved by a little sugar, or a few drops of lemon juice; one or two teaspoonsful of gum arabic enhances its efficacy. The dose must be determined by experiment; it is harmless in any amount. A half-glassful, three or four times a day, or whenever one feels like taking a drink, may be tried. It may be well to make up a quantity each day, and to use it in place of drinking water. The best results will obtain if it is taken daily for several weeks.

### SUGARS

Those who are partial to pies, cakes, pastries, candies, sweets in general, are often troubled by indigestion and by other disturbances. Some headaches, muscle pains, dyspepsias, bilious attacks, are frequently benefited by lessening the sugar intake.

As a rule, we employ cane or beet sugar. In moderation, the stomach takes care of these very well. If eaten freely, digestion is taxed, with resultant dyspepsia, constipation, or diarrhea. Sometimes there are a few signs pointing to sugar intoxication, yet by lessening it in the diet the vague ills disappear.

Not rarely a change from cane sugar to lactose (milk sugar) will remedy constipation. Lactose is more expensive than cane sugar, and is not so sweet; but it is as nutritious, and has a diuretic action in addition to laxative effects. It is very useful in reducing putrefactive changes in the intestines. Some persons find that a teaspoonful or two of lactose taken with a glass of water each morning keeps their bowels regular.

Honey is a very valuable food with which we should be more acquainted. Ordinary sugar is not absorbed until it has been transformed into grape sugar. Honey, on the other hand, is the simplest of all sugars and is digested easily. It is often tolerated when other sugars are not, as in indigestion and diabetes. It may be used to take the place of cane sugar on breakfast cereals, on baked apples, or it may be made into candy.

Other laxative sugars are brown sugar, old-fashioned molasses, sorghum syrup, maple syrup, all of which may be employed in replacing cane sugar, wholly or partly.

### FERMENTED FOODS

Those of us who are familiar with farm life know that the farmer fills his silos each fall with green food. He has learned by experience that this food benefits his cattle during the winter;

also, that it has a good effect upon their milk supply. (The milk is not, however, as rich in nutritive value as that obtained when the cows are in the fields; winter milk, for example, contains less vitamins than summer milk.) We may know, too, that in countries where fermented foods—as sauerkraut, cheese, sour milks—predominate in the diet, the health and length of life are exceptionally good. Some scientists have thought that in these foods resides the secret of youth; but the countrymen offered as examples owe their health to many things, as out-of-door existence, substantial food, regularity in living, freedom from hurry and worry.

Though we must not overstress the value of fermented foods, it is a fact that they do aid the intestinal health of many persons. This is especially true of the milks, of which there are many, as kefir, yoghurt, leben, matzoon, koumyss. Probably the most widely used of the fermented milks is buttermilk, which, as we all know, is a by-product of the butter industry. Many so-called buttermilks are, however, prepared by fermenting skimmed milk, a by-product of the cream trade. This artificial buttermilk is made by adding lactic acid bacilli to the skimmed milk; the bacilli sour the milk by changing the milk sugar into lactic acid. Milk prepared like this is

not objectionable; in fact, it often has more food worth than natural buttermilk.

Buttermilk, like other fermented foods, owes its value chiefly to lactic acid, which stimulates peristalsis to some extent and which hinders the development of putrefactive bacteria. Buttermilk contains from 0.6 to 0.9 per cent acid, mainly lactic. A fact of practical importance is that in the presence of 0.4 per cent lactic acid, germs causing diphtheria, dysentery, cholera, typhoid fever, septic sore throat, etc., are destroyed or rendered inactive, though some virulent strains may not be affected. The danger that buttermilk will carry infection is therefore slight, and much less than that of raw cow's milk.

In place of fermented milks, tablets containing lactic acid bacilli have been employed for oral use. When used, it is recommended that there be a reduction in the protein in the diet, and an increased supply of starchy foods. The good effects sometimes noted by the use of these tablets are not all due to the bacilli, but largely to the changed diet. As stated in another place, the intestinal flora change both as to type and virulence according to the nature of the food eaten. When the diet is mostly nitrogenous, putrefactive organisms predominate; when carbohydrate foods are in excess, fermentative germs rule. There is



considerable doubt that the ingested lactic acid bacilli reach the large intestines in amounts sufficient to effect a change in the colon's bacteria. Experiments have shown that few viable bacilli can be discovered in the colon, the place where putrefaction occurs.

It is rash indeed for anyone to take these tablets save under the direction of a physician. In the first place, many of the tablets on the market are worthless; they contain only a small fraction of the bacilli that the manufacturers represent them to have; many are sterile, having no live organisms at all. Again, the indiscriminate use of the tablets may be harmful. In anemia, run-down conditions generally, the system may be acid, and the production of acids merely aggravates matters. In dyspepsias accompanied by reduced alkalinity of the intestines, acids may be coal to the fire.

Lately, the bacillus acidophilus (either alone, or in petrolatum, or in milk preparations) has been advised in constipation. Unlike the lactic acid bacillus, the acidophile bacillus can be readily demonstrated in the excreta when given in sufficient amounts by mouth. This bacillus is normally present in the large intestine, though not in large numbers. Acidophile bacilli are supposed to change the chemical reaction of the large in-

testine, normally alkaline, and thereby to prevent putrefaction. Some favorable reports have been made, particularly in constipation of the putrefactive variety. It is probably true that just as satisfactory results can be obtained, at less expense, by limiting the protein intake, and by taking a teaspoonful or two of milk sugar once or twice a day. The milk sugar tends to stimulate the development of one's own acidophile bacilli; bacilli introduced artificially do not seem to take up their abode in the intestine, but are excreted in a comparatively short time.

To the use of fermented foods, the milks especially, there is no objection. The foods are nutritive, and have some value in activating the bowels. Their taste is unpleasant to many at first, but a liking for them is acquired in time. They sometimes produce a sensation of weight in the stomach when taken at or near meals; in many of these cases, they are more agreeable when used between meals. In some persons they diminish appetite, no matter when taken. When this occurs, they are inadvisable. If tolerated, a glass of buttermilk two or three times a day is sufficient.

There are other foods which are more or less laxative, as gelatine, tapioca, Irish moss. However, the most laxative have been mentioned, and

from these good results can be expected. The outlining of a diet for the constipated to follow is not practical, if for no other reason than that few would or could continue with it.

What the constipated person should do is to practice the general laws of health and to pay particular attention to diet. As we have before stated, it is from diet that most help can be gained. The necessity of eating less meat, and of being partial to vegetables, fruits, coarse breads and cereals, is emphasized. If these measures do not suffice, bran, agar, or petrolatum may be added. Such routine diets as consist largely of white bread, potatoes, rice, tea, meats, peas, beans are especially to be avoided. Should the eating of coarse foods seem to disagree, or to distend the intestines unduly, the number of meals may be increased and the quantity eaten at each meal lessened.

Sudden changes in diet are not advisable. The alteration should be effected gradually. Once a certain régime is found useful, it should be followed more or less closely, though monotony should not rule. Constipation requires continual oversight; but this may be a blessing in disguise, since it may force one to lead a hygienic life whether he wants to or not.

## CHAPTER X

### PETROLATUM—AGAR—YEAST

My experience has convinced me that the efficiency of the routine treatment may be increased in certain cases by the use of paraffin oil and agar-agar, if judiciously used, when the proper indications are present.—DR. M. E. SMUKLER.

### PETROLATUM

LIQUID petrolatum, also known as mineral oil, paraffin oil, liquid paraffin, has been considerably employed in the treatment of chronic constipation. It is a by-product of petroleum purified for medicinal purposes. While its laxative value has been known for a long time, it was not until Sir W. Arbuthnot Lane, the famous English surgeon, published his experiences with it that the medical profession generally gave it much attention. Its use became so widespread that at least fifty different concerns began to supply it, each firm giving it a distinguishing trade name.

Skilful advertising means increased sales of one's goods. Consequently, some dispensers of liquid petrolatum made claims for their brands

of liquid petrolatum which were debatable. Among the claims most often encountered were: 1. That the oil obtained from Russia (Russian Oil) is superior to American Oil; 2. That a light oil, by weight, is preferable to a heavy oil.

In order to obtain information as to the validity of these contentions, the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association submitted samples of light Russian petrolatum, heavy Russian petrolatum, and an American brand of light petrolatum, to various physicians for clinical tests. To avoid bias, the oils were numbered or lettered, rather than named. On the results of these tests, Dr. Bastedo wrote, in part, as follows:<sup>1</sup>

“The results of this clinical investigation appear to warrant the conclusion that so far as therapeutic results are concerned the differences in the action of the three varieties of liquid petrolatum, namely, light Russian petrolatum, heavy Russian petrolatum, and American liquid petrolatum, are too slight to be of importance. Hence the choice between the lighter and the heavier oils and between the Russian and American is an open one, to be determined not by therapeutic differences, but by palatability, dependent upon

<sup>1</sup> *Journal American Medical Association*, March 6, 1915.

the degree to which the refinement of the oil has been carried out."

Whatever brand of liquid petrolatum one selects, he should see that it is colorless, odorless, and tasteless. Exposing the oil to light, and keeping it in loosely stoppered bottles, will often cause the oil to have a yellow color and a disagreeable taste.

Liquid petrolatum softens the waste and in this way aids evacuation. It is particularly useful when the waste is hard and dry, and when there is difficulty in expelling the feces. It is in no sense a drug, its action being purely mechanical. None of it is digested, and none is absorbed. No harmful influence is exerted on any of the structures with which it comes in contact. It has been claimed that liquid petrolatum either kills or renders inert the various intestinal bacteria, but there is no evidence that this is true; it is exceedingly doubtful if the bacteria are affected in any way by it.

Liquid petrolatum may be taken with perfect safety by the nursing or pregnant woman. Since none of it is absorbed, it can have no detrimental influence on mother or child. It may be given to children also. In the aged it is often very serviceable. Anemic persons, those who are underweight, who suffer from some debilitating disease



or indigestion, should not take petrolatum except with the consent of the physician. In these cases the oil may further enfeeble the individual by producing too many movements, or it may interfere with an already weakened digestion.

In some instances liquid petrolatum causes nausea. This occurs most frequently when digestive troubles exist, and in those whose stomachs have poor motive power. Sometimes a stool consisting almost entirely of oil may be passed. Sometimes, too, after a person has taken sufficient to cause an evacuation, a leakage of oil takes place, which stains the clothes and leaves the skin in a greasy condition. As a rule, these undesirable results indicate the necessity of a reduction in the amount of the petrolatum used.

The amount of liquid petrolatum required for a movement varies between a half-ounce and three ounces a day. It may be taken at one time or in small amounts three times a day, the results being the same in either case. It is best taken between meals, either alone or with cold water, lemonade, orangeade, or flavored with a few drops of oil of peppermint, oil of cardamon, or other volatile oil. If desired, it may be taken an hour before meals or at bed time. Taken shortly before or after meals it may interfere with digestion.

In obstinate constipation, particularly when the waste is hard and dry, liquid petrolatum may be given a trial. It is certainly preferable to drugs. To obtain the best results the efficacy of small doses should be tried first, and the dose increased if necessary. It must be taken regularly; as a rule, it will take from three days to a week before results are noted. It is not a cure; that is, it will not of itself cure constipation; it should, therefore, be used in conjunction with other measures, and as the intestines regain natural activity, it should be gradually discontinued. While no harm is apt to follow from its continued use, it is rather expensive, especially if taken in large amounts daily; again, one rarely forms an appetite for it and may be inclined to discontinue it after a time.

If one cares to purchase any of the widely-advertised brands of petrolatum there is no objection, if the concern is reliable. However, one should remember that petrolatum is useful only in constipation; if it relieves any other troubles it is because these troubles were dependent upon constipation. It is well to remember, also, that advertising costs, and the burden of the costs usually falls upon the consumer. By purchasing liquid petrolatum made according to the standards of the United States Pharmacopeia, and

known as Liquid Petrolatum U. S. P., one may purchase an oil of good quality at a comparatively low price. If a more pleasant preparation is preferred, the Emulsion of the National Formulary may be obtained.

In some instances a combination of bran and liquid petrolatum works better than when either is taken alone. Two or more tablespoonsful of bran three times a day, alone, or in cereals, fruits, soups, etc., and a tablespoonful—more or less—of liquid petrolatum at night will often remove constipation when all other methods have failed. It may be necessary, however, to take the bran and the petrolatum for as long as a week before obtaining the desired results.

In place of liquid petrolatum, common yellow petrolatum may be employed. It is often superior to the liquid petrolatum, and is not apt to cause leakage. Yellow petrolatum is semi-solid, and is commercially known as vaseline, petroleum jelly or cosmoline. Vaseline is a trade name. In the United States Pharmacopeia ordinary petrolatum is known simply as Petrolatum U. S. P. The latter is a good product, and can be recommended.

In a communication to the *Journal of the American Medical Association*, Dr. Harold

Gifford<sup>1</sup> has the following to say concerning yellow petrolatum:

“To those who believe, as I do, that some form of lubrication of the large intestine is desirable in the treatment of autointoxication from intestinal stasis, let me recommend common yellow petrolatum in place of oil injections or liquid petrolatum by mouth. From one to four heaping teaspoonsful a day, by mouth, will generally produce soft or semiliquid stools without the least griping. It is decidedly more efficacious than the liquid petrolatum, which frequently passes right by fecal masses without mixing with them or causing their expulsion; while the yellow petrolatum mixes thoroughly with the bowel contents and is never expelled by itself. This also makes it a much more decent form of treatment than that by liquid petrolatum, which often causes a most disagreeable leakage. The yellow petrolatum has somewhat of the latter advantage over oil injections, to say nothing of what is saved in fuss and expense. An oil enema is so elaborately disagreeable a function that I often wonder how so many of the men who light-heartedly order their patients to inject half a pint of olive oil every night for a year or so have ever tried it themselves. As to the expense, a five pound can of the

<sup>1</sup> Jan. 27, 1917, p. 304.

yellow petrolatum retails for a dollar, and this will last from two to three times as long as a gallon of cottonseed oil, costing about twice as much; or if olive oil is used, from three and a half to four times as much. The white petrolatum costs more than the yellow and is, I believe, less efficacious. The yellow is practically tasteless, and if approached without prejudice is really a rather pleasant dose. If so preferred, it can be taken in any hot liquid. The dose necessary at first can generally be reduced by half after a week or so."

Needless to state, the petrolatum should be free from such substances as boric acid and menthol; in other words, it should not be a medicated petrolatum or vaseline. If difficulty is experienced in taking it in its original form, or in hot liquids, it may be melted in a spoon, poured to a cold spoon and then swallowed. Or one may spread it on bread or crackers.

### AGAR

Another agent of value in practically all forms of chronic constipation is agar, sometimes known as Japanese gelatin, Japanese isinglass, Japanese seaweed, and as agar-agar. It comes almost exclusively from Japan and Ceylon, and is obtained from seaweed.

As ordinarily offered for sale, agar occurs in the form of dry, transparent, coarse flakes; also, as a coarse powder. It has a slight, not disagreeable, odor, and an insipid taste. Most druggists can supply it.

Agar is not irritating, though some persons whose intestines are sensitive may not be able to tolerate it. If taken in fine powder form—as it should not be—it may produce cramps, diarrhea, and other discomforts. Its action is mechanical; having a great affinity for water, it absorbs moisture in the intestines, thereby adding bulk to the waste, and preventing the latter from becoming dry. None of it is absorbed or digested, and it is not habit-forming.

There are many persons who digest cellulose, which is generally indigestible, and which comprises a large part of vegetables and fruits. When the cellulose is digested, the waste is small in amount, and constipation usually follows and resists the usually prescribed dietetic and hygienic treatment.

The fact that the intestines digest cellulose is not a matter of great importance. Other things being equal, it simply represents an individual peculiarity which is not, in itself, dangerous. However, since the condition tends to favor constipation, some substance must be supplied to



take the place of the cellulose, so that sufficient bulk will be given to the intestinal contents. The best agent for this purpose is agar. Bran often suffices, but it may be digested, or give rise to flatulence and other annoyances. In such cases, and where bran does not prove satisfactory, recourse may be had to agar; the same applies when the liberal use of laxative foods seems to be ineffectual or to aggravate the constipation. Agar and bran often make a good combination.

Agar can be recommended in practically all forms of constipation. For an adult, the dose is about a half-ounce morning and night, or a heaping tablespoonful three times a day. Larger quantities may be taken with safety, but it is better to begin with small amounts and increase if necessary. It may be taken in soups, gruels, breakfast cereals, rice, apple sauce, stewed fruits, mashed potatoes. Many persons find that a teaspoonful on the breakfast cereal, and a teaspoonful at night on vegetables or in soup, cause daily movements.

It is advisable to have a covered agar bowl on the table constantly so that the agar may be added to the food as desired. Like bran, agar may be incorporated in breads, cakes, cookies, and the like. It should be mixed with the dough just prior to baking. The wise housewife will

employ it in the foods she prepares, so that one will not tire of it.

If preferred, agar may be washed down with a glass of water. It should not be chewed; when chewed, or powdered, it may produce cramps. The best time to take it is at meals, since it thereby becomes well-mixed with the food, and effects an evacuation more rapidly.

Gelatinized or jellied agar is relished by many. Two teaspoonsful of agar are added to a pint of hot water and boiled for several hours, or until the agar has thoroughly dissolved. The liquid is then poured into small cups or moulds, and is set aside to cool. Before cooling a flavoring extract may be added.

Agar may be taken in liquid form. To make liquid agar, two tablespoonsful of agar should be added to a quart of hot water and boiled until liquified. The solution should then be allowed to cool slightly. One may drink as much as he cares to at one time, though few persons care to take much of it at once. If the solution is set aside, it gelatinizes. To offset the latter, and to permit one to take liquid agar at various times without remaking it, it has been suggested that the liquified agar be placed in a vacuum bottle. If the taste of the liquid is not agreeable, one may add a pinch of salt, or take in tea, coffee, or

bouillon. Results may not be obtained for as long as a week. Of course, the amount may be increased without harm; also, one may use a pint of water in preparing liquid agar instead of a quart.

If agar is employed, in any form, it must be given at least a week's trial, since it usually takes this time before results are noted. As regular evacuations occur, the amount should be reduced. It may be used continuously if desired. As a rule, if from four to eight teaspoonsful of agar do not bring about the desired effects in a week, it is an indication that agar in itself will not be sufficient to relieve the constipation.

### YEAST

Yeast has been known to medical science for hundreds of years. At different periods it was employed for various diseases, but until comparatively recently it had fallen into disuse. The experiments of Professor Hawk and his associates have reëstablished it as an agent of value in certain disorders, among them constipation.

In simple cases of constipation yeast may be given a trial. The amount necessary to cause a movement varies from one-quarter to one cake three times a day, taken before, after, or between meals.

If one prefers, brewers' yeast, dry yeast, or yeast in tablet form may be used. It may be a matter of opinion which preparation of yeast is the most convenient and satisfactory, but in so far as constipation is concerned, it is probably true that fresh compressed yeast, such as is sold in small cakes at the grocery, is preferable. At any rate, this was the yeast subjected to carefully controlled, scientific tests upon which many of the claims for yeast therapy are based. Unlike some of the other yeast preparations, it is not bolstered by laxative drugs which, when used without regulation over long periods, tend to foster the drug habit and to upset the natural mechanism of the intestinal tract. Only recently several instances have come to the writer's notice where tablet yeast caused cramps, indigestion, and "pimples" in healthy persons who were taking the tablets experimentally. This fact is worth notice, since it is often claimed that tablet yeast is absolutely harmless.

If fresh yeast is used, it may be taken alone, or suspended in a liquid, such as water, milk, beef tea, fruit juice. It may be spread on crackers or bread. If one is troubled by "gas on the stomach," it may be wise to take the yeast between meals only; it will be helpful if sugars and starches are limited in the diet and especially

if sweets are not eaten shortly before or after meals. It may be necessary to use killed yeast in these cases. (Yeast is, of course, a form of plant life, known scientifically as *Saccharomyces Cerevisiae*. Each yeast cell measures about  $\frac{3}{1000}$  inch in diameter. In each small yeast cake there are about a million yeast cells. When supplied with suitable food, moisture, and warmth, the cells grow rapidly; there is no evidence as yet that they grow in the intestines. When taken internally they do not act as in the raising of bread). Yeast may be killed by immersing it in a cupful of hot water for a few minutes. Killed yeast is, in general, as effective as live yeast, though in some cases of constipation live yeast seems to act better.

When effective in the treatment of constipation, improvement begins in a few days; for best results it may be necessary to continue the yeast for several weeks. Obviously, absolute dependence should not be placed upon it, nor should one neglect toilet habits, exercise, diet, and other aids to elimination. Once bowel movements have been restored, the yeast should be discontinued.

The extensive exploitation which yeast has received in the lay press may justify a word of caution. One familiar with the psychology of the sick, especially those suffering from chronic

ailments, appreciates their tendency to experiment with all new remedies which promise, or which offer hope of, cure, even though wisdom questions the rationality of such a course. Yeast has a value when judiciously prescribed and utilized, but it is not foolproof, nor is it a panacea. While practically innocuous in most cases, there are some impairments, as heart disease, chronic appendicitis, gastritis dependent upon abnormalities outside the gastro-intestinal tract, where its employment may be attended by grave symptoms. Inasmuch as there is such a thing as being penny wise and pound foolish, it is surely best for those contemplating the use of yeast or of any other medicinal agent, for any purpose, to be assured orally by a competent authority that it is suitable in his or her particular case.



## CHAPTER XI

### MISCELLANEOUS REMEDIES

#### POSTURE—ABDOMINAL SUPPORTS—COLD BATHS—ENEMAS

To stand erect and walk and move easily, to have all parts of the body so adjusted that easy balance and graceful use may result, is to be desired for more important reasons than the esthetic. Such elements are necessary for perfect health.

—DR. J. E. GOLDTHWAIT.

#### POSTURE

FEW people realize the great influence posture has upon health. That it has an influence can be doubted no longer, for it has been proved that incorrect standing, walking, and sitting, are directly responsible for many ills. There are some physicians who claim that faulty posture may be an important contributing cause of tuberculosis, since poor posture prevents proper use of the lungs and weakens them. We know that when a person slouches his lungs are compressed, and impure air stagnates in them. The principal site of the air stagnation is the apices of the lungs, and it is the apices which are most often affected in tuberculosis.

Whether or not faulty posture plays a part

in tuberculosis, it is unquestionably responsible for many deformities, as round shoulders, depressed and asymmetrical chests, crooked spines, fallen arches. In children it often leads to anemia, mental retardation, indigestion, enuresis, and other troubles. In adults, it often produces headache, weak back, painful feet, biliousness, nervousness, indigestion, and constipation.

The two chief types of poor posture are the so-called sidewise slouch and the heel posture. In the first named, the person carries the body to one side, the shoulders are rounded, and the arms hang in front of the body. This posture prevents full use of the lung on the depressed side; it also depresses the organs of the abdomen on that side. A majority of the persons who have tuberculosis show this type of posture.

The heel posture is more common. In this the person has rounded shoulders, both sides of the chest are depressed, and the abdomen protrudes. This type of posture prevents proper use of both lungs, and crowds and lowers the abdominal organs. Like the other type, it leads to deformities of the chest and spine.

If the abdominal muscles are weakened, and the abdominal organs, as the liver, stomach and intestines, are crowded together and lowered, it is but natural that constipation should result.

This happens with faulty posture. The weakened abdomen not only prevents proper straining movements at stool, but, by failing to support the intestines, permits the latter to distend and to sag. Crowding the organs together allows blood to stagnate, especially in the liver. The sagging of the intestines, *per se*, renders the passage of waste matter difficult.

Examination by the fluoroscope have shown that the slouching posture lowers the stomach and intestines several inches. The erect posture raises them as much—from one to three inches. Breathing with chest up raises them from one to six inches. When elevated, the stomach and intestines can more easily empty themselves.

It certainly behooves us all, and especially the constipated, to maintain correct posture. Much ill health is due to neglect of this apparently minor matter. We have to stand, sit, and walk every day of our lives, and it is just as easy and infinitely more healthy to do these things in the right way rather than in the wrong way.

In standing and walking the correct posture is to throw the shoulders back, square them evenly, keeping the chest high and arched forward, the chin in, the stomach in. There should be a feeling of tenseness or firmness of the abdominal muscles. Great chest expansion is as

much an extreme and as much undesirable as slouching. In all things, as Plautus tells us, a middle course is best.

In sitting, sit well back in the chair, close to the desk or table, resting the inner parts of the forearms easily upon the surface of the desk or table. In leaning over, incline the body forward by bending the hips, not the chest. The shoulders should be squared as in standing and walking. Allow the body to rest on the thighs entirely, and not principally on the buttocks. The feet may be crossed, if desired, resting lightly on their outer edges.

It is necessary to pay attention to the feet if we wish to maintain the correct posture and avoid foot troubles. Toeing out, common in women, strains the arches; it is corrected by toeing in. The reverse, excessive toeing in, sometimes found as a more or less natural condition in children, is corrected by persistently toeing out. A slight degree of toeing in is not harmful. When excessive it may be corrected, in addition to the above-mentioned method, by wearing a straight-lasting shoe with a lift of one-fourth or three-eighths of an inch put in under the outside of the sole. The shoes should be one-fourth inch longer than the foot. The heel will wear out on one side; this should be kept in repair.

Weak feet are responsible for much flat feet and muscle pain in legs, feet, and back. They also cause improper posture. They are not due to the arch being weak, as is commonly supposed, but to weakness of the muscles supporting the arch. These muscles may be strengthened by rising on the toes from twenty to forty times morning and night, by running barefooted, and by similar exercises, the brunt of which falls on the feet.

Improper shoes explain many foot troubles and are in themselves a cause of faulty posture. The most common fault, especially in women, is the wearing of shoes that are too tight. Dame Fashion and Dame Health are usually poor bed-mates. Shoes should be roomy; moreover, they should be kept in repair. Such shoes as are ordinarily offered for sale are not suitable for all types of feet. According to the American Posture League, feet are normally of three types—the inflared, outflared, and straight. The type of foot one has is found by bisecting the foot with an instrument called the foot meter. Straight feet are those in which the heel axis prolonged forward divides the ball of the foot equally to within half an inch. Outflared feet are those in which the larger part of the foot at its wider part falls to the outer side of the axis; inflared feet

the reverse. This League now supplies shoes suitable for these types of feet; many shoe stores carry them in stock.

Metal supports for weak arches are, in the long run, not very valuable. The best remedies for foot trouble are natural shoes and suitable exercises. At times metal arch supports may be advised, but they are intended for a limited period, and should be changed just as soon as the feet have become used to them; otherwise, the old discomforts will recur.

There are many conditions which affect posture. One is the type of chair used. The hollowed or straight-backed chair does not aid good posture; neither are easy chairs in general suitable. The ideal chair is one modelled after the modern automobile seat.

Tables used for writing, reading, or drawing should not be flat; if flat, they tend to cause incorrect posture and eyestrain. A table that slopes is preferred; or the book, or writing or drawing board should be held sloping. It is often said that in reading the light should come over a certain shoulder; this is not correct, for inasmuch as no shadow is cast in reading it is immaterial over which shoulder the light comes. In writing there is a shadow; and therefore, the light should come from above and behind and



over the left shoulder in right-handed people; and over the right shoulder in left-handed people. Of course no one should try to read when the light is poor, or in a position which requires that the reading matter be held between the eyes and the light; this promotes eyestrain.

Reading, writing, or sewing, or any other form of "close work," should not be performed for more than two or three hours at a time; when engaged in such work it is also advisable to rest the eyes for a few minutes every half-hour. Reading or writing in bed is not detrimental if the light is proper and one is in the semi-recumbent position; reading while on the back or in the prone posture is harmful. Reading while on moving vehicles is not forbidden providing the movement of the vehicle does not cause the book to shake so much that the letters seem to dance before the eyes.

Clothes may affect posture detrimentally. Many of the ready-made, and tailor-made clothes are modelled poorly, the weight of the garments often falling principally on the chest or back. Clothes should be roomy, and should always permit freedom of movement. They should be suspended from the shoulders, near the neck, or from the pelvis, above the hips. The tips of the shoulders, and the waist should not bear the

main weight of the clothing. Tight lacing is responsible for many disorders of the stomach, liver, and intestines; also, for many complaints considered natural to the female.

### ABDOMINAL SUPPORTS

Persons who are obese, who have pendulous abdomens, or weak abdomens, will often find relief from constipation, also from backache, headache, indigestion, and other troubles, by wearing a suitable abdominal belt, bandage, or corset, the object of which is the support of the relaxed or weakened abdomen. Weak abdomens may occur not only in those who are stout, but also in thin persons, especially those who are of a nervous temperament.

When the abdominal muscles are weak, the various large organs of the abdomen are congested, and this congestion hinders the intestinal movements. There is also a tendency for the ligaments which hold the organs in position to relax so that they sag. Owing to the lack of muscle tone, straining movements at stool, upon which so much depends, are feeble and ineffectual. Any of these reasons is a sufficient cause for constipation.

As to whether or not an abdominal support is advisable, it is probably best to consult the

physician. However, in constipation of long standing, its use would not be generally contra-indicated; also in obesity, following abdominal operations, frequent pregnancies, malnutrition, distended abdomens. Even though a support should be necessary, deep breathing, proper posture, and exercises which strengthen the abdomen, should not be neglected. As a rule, the support, when necessary, must be worn for a long time, but by instituting other corrective measures, it is possible to shorten the time usually required.

A good support may be made of linen; it should fit snugly about the abdomen, and should be arranged with straps so that it will not ride over the hips. Or a wide bandage made of ducking may be used. In stout persons almost any bandage will do providing it fits snugly. In thin persons it is essential that a perfect fit be secured; sometimes it is necessary to reinforce the bandage by a pad. There are surgical stores in practically every city where suitable binders may be purchased, and in most cases it may be better to be fitted by someone conversant with the requirements. One's family physician will put one in touch with places where the supports may be obtained, should there be a difficulty in locating a dealer in these goods.

In many instances when the abdominal muscles are relaxed, as well as in nervousness and other conditions, it is often found that whitish or yellowish shreds are passed from the intestines. These shreds cause much distress, since it is thought they represent pieces of the intestine; sometimes there is a fear of cancer or other serious abnormality. In reality, the shreds are nothing more than mucous, which comes from the many small glands lining the intestine. In perfect health a certain amount of mucous is passed every day, but, as a rule, not in amounts sufficient to attract notice. Whenever the glands become excited, or irritated, as may happen from the abuse of drug laxatives, the amount may be quite large. Often the excess is due to constipation, even nervousness.

The presence of mucous in the excreta is not a weighty cause for alarm; it is not a fatal disorder, and indicates a functional disturbance rather than actual disease. Its cure may, however, take some time, especially in chronic cases. The first requisite for cure is the removal of constipation, which is present in many instances. It is also necessary to lead a quiet life, free from worry; often a vacation does good. Sometimes a raw fruit or raw vegetable diet for a few days brings about great improvement. Drugs should

be taken only by the direction of the physician. Technically, this disorder is known as mucous colitis.

### COLD BATHS

Water externally, particularly cold water in the form of a tub, shower, spray, or sponge bath, is a very useful adjuvant in the treatment of constipation. In some instances, a cold compress applied to the abdomen at night and left on until morning proves of equal value. In themselves cold applications are not often curative, nor are they essential in the treatment. Such benefit as they possess is greatly enhanced when exercise is taken with them.

Cold does good chiefly because of its tonic action upon the body generally. It influences the nervous system, and especially the sympathetic nervous system which governs the functions of many organs which cannot be reached directly by exercise, foods, drugs, or other means. Cold also stimulates the muscles of the intestines, as well as the nerves of the abdomen, thereby relieving the latter's congestion.

Doubtless the prejudice which many of us have to cold baths is not often justified. There are some persons who do not respond to them well, but the majority can accustom themselves

to them, and if they do so will find that they promote better health. It is not wise to take cold baths, as a rule, without first weaning oneself to them. Should it be found that they cause weakness and exhaustion, that the hands and feet turn blue, they should be discontinued, unless one can assure himself that these effects are only temporary. Following cold baths there should be a feeling of exhilaration and warmth. When depression is present, it is probable that the person has a non-reactive nervous system.

Cold baths are contraindicated in the aged, the very feeble, those suffering from heart disease, kidney disease, disease of the arteries, insomnia. At present cold bathing is being employed with much success in the treatment of tuberculosis, and if persons having this debilitating malady can profitably withstand it, it does not seem to be too harsh for those in good health. Of course, no tubercular person should take cold baths without his physician's direction. Cold baths in tuberculosis must be given very carefully, and in selected cases; they are best administered in sanitariums.

In general, cold baths should not exceed a minute or two in duration. If prolonged, or if taken too often, they may produce weakness, or congestion of the mucous membranes (a cold).



This is most true of persons of poor vitality. Once a week is often enough at the start; after one has become used to them he may take them oftener, say two or three times a week.

Those wishing to take cold baths, but unaccustomed to them, may begin by having the temperature of the water 98 degrees Fahrenheit. The temperature may be gradually lowered from day to day until it has been brought down to 70 degrees, or even to 65 degrees.

Next to the cold tub bath the cold shower bath is most beneficial; often it works better. If one has not a suitable apparatus for a shower bath, he may purchase one for a moderate amount. Or if he prefers, he may make use of a sponge, squeezing cold water over each shoulder, over the chest, and over the back. The head should be kept dry. Again, he may employ a watering pot, or a pitcher, or a hose attached to the cold water faucet.

A cold sitz bath is also helpful in constipation. In taking the sitz or hip bath the person should sit in a tub filled with water having a temperature of 80 degrees. The limbs and the trunk, except the pelvis, should not be in the water. The exposed parts of the body may be protected by blankets. The bath should last about five min-

utes. If combined with abdominal massage its value is increased.

The spinal douche has much to commend it. While hydrotherapeutic institutes can give it best, one may rig up a spinal douche apparatus for home use. By means of a hose attached to the cold water faucet a second person plays a stream of cold water up and down the spine of a person standing in the bath tub. Better effects will be noted if moderately hot water is played up and down the spine prior to the cold douche. The same procedure applied to the abdomen is as serviceable in many instances.

If none of the above appeal, one may, following the usual bath, give himself a rapid sponging with cold water, or rub his body with a towel wrung out in cold water. Or if desired he may dispense with the tub bath.

Each of these procedures should be followed by a brisk rubbing with a large, soft towel, after which the person should go to a warm room for dressing, or in case the bath is taken at night, to a warm bed. In the treatment of constipation, bathing before breakfast is preferable, because the cold tends to intensify the natural tendency of the bowels to move after breakfast. It is best not to take cold baths shortly before a meal, nor directly after meals. At least a half-hour

should elapse before eating. Those having difficulty in going to sleep should avoid cold baths in the evening; there is no objection to warm baths in these cases; in fact, many insomniacs find that they aid sleep.

As stated, cold applications are helpful in constipation, especially in chronic cases, providing one has no physical disability that renders them inadvisable. They are not absolutely essential, and in themselves cannot be expected to effect a cure. They are simply aids, and whatever good they accomplish is brought about by their tonic action.

### ENEMAS

Flushing the lower bowel by means of enemas or injections will often remove waste. Thousands of persons use this method of relieving constipation, most of them needlessly. It is true that the enema is beneficial at times, but in most cases of constipation it can be dispensed with, especially as a routine measure.

The disadvantages of the enema, when frequently employed, are many. The introduction of large quantities of water into the lower bowel distends the latter and tends to weaken it. If drugs are added to the water there is danger of inflammation. There is also a possibility of in-

flammation and of more serious trouble because of the irritation produced by the nozzle of the syringe, particularly when the nozzle is inserted carelessly or unskilfully. But the chief objection is that the enema brings about an evacuation in an artificial manner, and does not train the intestines to move of their own accord; again, since the movement is artificial, the sensitive nerves and muscles of the intestines, and the muscles of the abdomen, become impaired. Thus, a dependence upon enemas is formed.

An enema is often useful in beginning treatment for chronic constipation, and when one is not relieved after a fair trial of dietetic and hygienic methods. The usual measures sometimes fail because the waste has become very hard and dry, and cannot be expelled easily. If this material is softened and removed—which may be accomplished by an enema once daily for a few days or even for a week—dietetic and hygienic treatment will prove their worth.

An enema is also valuable in so-called spastic constipation. Here there is difficulty in effecting an evacuation, though small amounts of dry, hard, ribbon-like material, sometimes streaked with blood and mucous, may be passed daily. An occasional enema is also helpful in many cases of constipation in the elderly. At best, the

enema should be considered as an agent of temporary utility, upon which absolute reliance should not be placed.

In taking an enema the person should lie upon the back, with the hips elevated. The reservoir of the fountain syringe should be held at a height of two and a half or three feet. To facilitate introduction, and to lessen the chances of irritation to the bowel, the nozzle of the syringe should be greased with olive oil, sweet oil, or vaseline, and should be inserted gently and slowly. Perforation of the bowel has resulted from forcible introduction of the nozzle of the enema-syringe. Again, before insertion, some of the water should be allowed to flow out of the tip; this is to prevent air from entering the bowel. The more slowly the fluid enters the bowel the more apt is it to be retained. Effort should be made to retain the fluid for as long a time as is comfortable. By lying on the right side the fluid goes further into the bowel, and is held more easily; also by resting for five or ten minutes after taking.

The best time to take an enema is at night. It may be taken during the day, but never directly after a meal without danger of nausea, vomiting, colic, and other unpleasant symptoms.

There are any number of solutions recom-

mended for enemas. Warm water is practically as good as any for general use. The warm saline enema is also good. This is prepared by adding three teaspoonsful of table salt to three or four quarts of tepid water. Cold water enemas serve well in some instances, but it is best that the enema have a temperature near that of the body. When very hot or very cold the enema has a tendency to cause discomfort and inflammation.

Many people make use of soap suds enemas. Alum, one teaspoonful to a quart of water, and equal parts of vinegar and water, have been suggested for very obstinate cases. It is prudent, however, to make the enema as simple as possible, and not to add anything in the nature of drugs unless the physician so advises to meet some special condition.

Oil enemas are often successful where others fail; they are especially good in spastic constipation. Their main drawback is their expense. A pint of olive or cotton seed oil of a good quality is usually employed. The oil should flow into the bowel slowly, and at least fifteen minutes should be consumed in introducing it into the rectum. The enema may be taken several times a week, or nightly until the waste is soft and the movements painless. The oil should be retained overnight if possible. The temperature of the



oil should be about 100 degrees. It is advisable to wear a diaper afterwards, lest leakage of oil occur.

Sometimes enemas of sweet oil cause nausea and other disagreeable effects. If so, liquid petrolatum may be used instead. The latter rarely produces any unpleasant sensations.

If preferred, oil may be injected by means of a syringe, from four to six ounces being injected at a time. Warm water injections will often accomplish the same results as oil enemas or injections.

Some people insert soap sticks into the bowel in order to effect a movement. Others employ capsules containing drugs. These devices are objectionable, for practically the same reasons that drugs are. The only way they differ from drugs taken by mouth is that instead of irritating the whole intestinal tract, they irritate but a part of it. And irritation kept up at one point is often more harmful than irritation over a large surface.

For taking an enema a good fountain syringe, such as may be obtained at the drug store, will do very well. There are any number of appliances advertised as being superior to the ordinary fountain syringe, but their chief superiority is in price, without possessing intrinsically any par-

ticular therapeutic value over the usual syringe. Some of the concerns that supply special types of fountain syringes also sell medicines to be dissolved in the enema water, and for which many direct and implied untruths have been made. One such medicine consisted essentially of a mixture of common salt and borax, which cost about a cent and which sold for half a dollar. Again, some of the pamphlets accompanying these special syringes, besides recommending so-called internal baths as cures for all kinds of ailments, have advised that enemas be taken regularly by everyone, sick or well. This is pernicious counsel, and is unsound indeed. An enema may cleanse the intestines, but what good it accomplishes is brought about solely by relief of constipation.

To repeat, the enema should be restricted to those cases of constipation that are obstinate. It should be used for a short period only—until the hard masses have been removed—and then reliance should be placed upon dietetic and hygienic measures. The occasional employment of an enema is not opposed; it is preferable to taking a drug. It is the habitual enema that is frowned upon, and this because it may have ultimate effects much worse than the constipation.

## CHAPTER XII

### DRUGS AND SURGERY

If it were known that a prize-fighter were to have a drastic purgative administered two or three days before a contest, no one would question that it would affect the betting on his side unfavorably; we will say to the amount of five per cent.

—OLIVER WENDELL HOLMES.

### DRUGS

THE abuse of laxative drugs is unquestionably the cause of many cases of stubborn constipation, and of many inflammations of the stomach and intestines. There are times when, under the intelligent direction of a physician, suitable drug laxatives are of service, but unless one is an invalid or has some obstructive disease of the abdomen, there is little or no excuse for frequent resort to them.

The objection to the habitual or frequent employment of drug laxatives is well-founded. For one thing, all such drugs are habit-forming, shown by the need of increasing the dose, the failure of the intestines to move unless stimulated

by a drug, and the necessity of changing from one drug to another in order to obtain the desired effect. When one considers that laxative drugs whip the intestines into activity, it is easy to understand why their frequent use exhausts the intestines, distends them, and numbs their sensibility.

Many persons are anxious about constipation, yet take drugs routinely as preventives. But drugs, especially the more powerful ones, as "salts," tend to cause more autointoxication than constipation itself. This is because the drugs break up the waste masses, and render the intestinal contents liquid; the more fluid the contents, the more favorable they are to bacterial growth and to the absorption of poisons. Those who feel sick or out-of-sorts following the taking of a physic are so partly because the digestive organs have been profoundly altered, and also because some absorption of the intestinal contents has occurred.

The opposition to laxative drugs holds, no matter what the derivation of the drugs. Certain advertisements would have us believe, by inference, that drugs obtained from "purely vegetable" sources are about as innocuous as the cabbage, the turnip, or the potato. A drug is by no means harmless by reason of its vegetable

or herbal origin; indeed, some of the most powerful poisons known to medical science have what may be called "purely vegetable" pedigrees; we might mention opium, cocaine, strychnine, digitalis. Nor are laxatives said to be composed solely of fruits or olives all they are alleged to be; many of them depend for their action upon drugs.

It has been previously stated that some so-called stomach remedies contain laxatives; so also do many proprietary remedies recommended for various ailments. A person who suffers from constipation may feel better as long as he takes one of these nostrums, and while in the mood may write or sign a glowing testimonial relative to all the serious ills of which he has been supposedly cured. As to testimonials, Dr. Ruhland once wrote: "The thinking person does not attach much importance to the testimonial. Testimonials are procured by patent medicine manufacturers on the theory that 'there is one born every minute.' On this theory they are able to sell their products." And when we find people dying of diseases for which they gave testimonials of cure; when we see their testimonials being used after their deaths, and in spite of protest from relatives, we have reason to be suspicious of them. In place of depending upon nostrums

of unknown composition, the constipated person will obtain more lasting benefit by exercise, diet, and other simple measures which are scientific and which are known to combat bowel sluggishness just as effectively and much less dangerously, in fact with no danger at all.

Many so-called spring tonics are largely laxative. There is no more need of tonics in spring than at any other season; our grandparents may have thought otherwise, but this is no reason why we should keep our minds stocked with antique notions. The forcing of medicinal tonics down the throats of the younger members of the family is a matter fit for the attention of the Society for the Prevention of Cruelty to Children. If one feels languid with the approach of warm weather, it means that the diet and clothing that have prevailed during the colder months require changing. It especially indicates a need of exercise and fresh air. Very often that tired feeling is a result of overeating, insufficient sleep, minor physical defects which should be corrected. If we desire to take blood tonics in spring, we can do so without drugging ourselves and without fooling ourselves. The best tonics at any period are fresh air, water, outside and inside, exercise, deep breathing, moderate eating, fresh fruits and vegetables.



There are some people who make it a routine to take a physic every Saturday or Sunday night; they seem to think that it is necessary, once a week, to wash the intestines as well as the skin. However, there is nothing in favor of this procedure; it merely upsets the orderly mechanism of the bowels and makes them sluggish. Given proper care, the intestines will keep themselves clean, and do the work much better than a drug can. And it might be mentioned that the "loginess" which many of us have on Mondays is not a sign that a physic is in order; merely, a reminder that we have misused our Sundays, say by engorging ourselves, by overactivity, or by stealing a few hours away from sleep.

We might discourage also the use of laxatives in the treatment of obesity. Laxatives may decrease the weight to some extent temporarily, but they do so by sweeping food out of the intestines; and not only do they prevent the utilization of food, but they also tend to sponsor ills more troublesome than plumpness. The obese person who really desires to be less rotund can gratify the desire safely and sanely; and this by removing the two chief causes of the fatness, namely, by suitable diet, and by adequate exercise.

There are times, however, when it is necessary to take or to administer a drug laxative; for ex-

ample, during an illness, or to remove irritating material from the stomach or intestines. (Some persons rashly give a physic whenever there is an acute pain in the abdomen; this is not always safe, since the pain may be due to some condition that demands prompt medical or surgical treatment, and which may be rendered more serious because of the laxative.) It may be worth while, therefore, to discuss briefly a few of the many drugs commonly employed for these purposes.

### *Epsom Salt*

When the average man thinks of taking a physic, his thoughts generally turn to Epsom Salt. And there are countless persons who regard the salt with as much affection as Byron did. "Talk about champagne," he said, "nothing cheers the spirit like a dose of salts." Epsom salt is magnesium sulphate; it is but one salt, and its popular name of "salts," used probably to distinguish it from table salt, is improper, though usage may sanction it.

Epsom salt brings about an evacuation by reason of its affinity for water. When taken internally, it absorbs water; and when the water absorption has proceeded far enough, the intestines are distended, and the intestinal contents, including nutriment, are swept, or flushed, out of

the bowel. The cleansing action is not thorough, for a certain amount of waste remains.

If Epsom salt is taken in dry form, or in a concentrated solution, it remains in the stomach until it has obtained sufficient water. The water will be taken from the blood; in this way, "salts dry up the blood." The movements are delayed, and irritation is produced. To avoid these undesirable effects, the salt should not be swallowed in dry form, and never in proportions less than a teaspoonful of the salt to a full glass of water. If water is taken freely after the saline-solution, though not necessarily directly after, the bowels will act more rapidly; the greater the dilution the more speedy the results. At times, warm water acts better than cool water.

In some conditions, as dropsy, it may be advisable to use the salt in concentrated solution, and to limit the water-intake; here the purpose is to remove water from the system. In dropsy, as well as in other diseased conditions, the use of Epsom salt should be regulated by the physician, inasmuch as the free employment of the drug may unduly concentrate the blood and cause faintness or shock. Again, the salt may be absorbed, and if so may give rise to alarming symptoms.

Epsom salt is best taken on awaking; taken at

night it tends to interfere with sleep. It may upset digestion if administered directly before or directly after meals. It usually operates in from two to four hours in active persons; in invalids it takes longer. Sometimes it acts very slowly, which may be due to the fact that some of it is absorbed into the blood. This absorption is undesirable; should one find that the salt usually requires a long time to act, especially when water has been used freely, it is best to substitute some other drug.

While most people do not like the taste of Epsom salt, they manage to swallow and to retain it. In some cases it is more agreeable, and is better retained, when baking soda is added to it (one teaspoonful of the salt, one-half teaspoonful of soda); this is most true of those who have irritable stomachs or indigestion. The following suggestions may be useful in disguising the taste:

1. Add some orange juice to the solution and stir.

2. Add some lemon juice and a small amount of sugar; stir.

3. Squeeze the juice of a small lemon into a pitcher of a pint capacity. Cut up the lemon into small pieces, remove seeds, deposit pieces in the pitcher. Add one tablespoonful of the

salt. Pour over this a pint of hot water, and stir. This makes enough for two doses (two cupfuls). Sugar may be added if desired.

4. Same as three, but substitute juice and rinds of an orange.

5. Bring to a boil a pint of hot water. Add two heaping teaspoonsful of the salt, and a teaspoonful of roasted coffee. Boil for a few minutes. This makes two doses.

### *Castor Oil*

Castor oil makes a prompt and efficient laxative. Its action is due to an acid which is formed when the oil is digested in the intestines. Castor oil is partly a food; in China it is used as an article of diet.

The oil usually works in four or five hours, without griping. It is best not to administer it at night, inasmuch as it may disturb sleep. The most suitable time is on awaking, or an hour or two before or after meals. Like other fats and oils, castor oil retards digestion when taken shortly before or after meals.

Castor oil is mostly employed in infants, in the aged, in invalids, in painful rectal states, and in certain diarrheas. Many people wonder why the doctor should give a physic in diarrhea. They reason that the bowels are moving freely enough

and that a physic makes matters worse. The object of the purge is to sweep out, quickly, the irritating material that is causing the frequent movements. Once this is removed, the diarrhea usually ceases.

Castor oil has a tendency to be followed by costiveness. Consequently, it is not advisable for frequent use. Though it is generally harmless when indicated and when not abused, Dr. Abt has demonstrated that a small quantity of blood can be detected in the stools of children who have been given castor oil on three successive nights.

Were it not for castor oil's unpleasant taste, it would be probably the ideal laxative. Various suggestions have been offered to disguise the taste, such as pinching the nose when swallowing it. Many of us do not appreciate the great aid that smell is to taste, though we may have gained some knowledge of this by reason of a cold in the head. If our olfactory organs became insensitive, it would be found that many things which formerly tasted pleasant would be less pleasant, even tasteless. Similarly, many substances which were disagreeable would be less objectionable. Though pinching the nose may not entirely mask the taste of castor oil, it will be of some help.

The oil may be placed in capsules. The large



capsules will easily hold twenty drops each, and four capsules should suffice for an evacuation.

As a rule, all medicines prescribed in capsules are to be taken without removing the contents of the capsules. This reminder is necessary because some persons think that only the contents of the capsules should be swallowed. The capsules are made of digestible material, and dissolve in the stomach or the intestines. Certain drugs, as quinine, will act better if the caps of the capsules are removed just prior to taking, but generally this procedure is not necessary.

If capsules are moistened in cold water just before use, they can be swallowed more easily. In swallowing a capsule or a pill, the head should be held slightly downwards, or in the position usual when one eats. If the head is held backwards the throat is narrowed, and swallowing becomes more difficult.

The oil may also be masked by lemon juice, strong coffee, onion soup flavored with cinnamon, hot broth, peppermint water, soda, pineapple juice. Other suggestions are:

1. Squeeze some orange juice into an empty glass. Cover this with the desired quantity of the oil. Then squeeze more orange juice over this.

2. Cover the bottom of a glass with some

pleasant syrup. Then turn the glass sideways, and work it around several times. Pour in the oil without touching the sides of the glass. Cover the oil with more syrup, or with peppermint water.

3. Pour about four ounces of ginger ale into a glass. Add the oil. Beat with an egg beater until the mixture foams. Then drink.

4. There are several tasteless castor oils on the market, some of which are satisfactory. Under the name Aromatic Castor Oil, N. F., a fairly pleasing oil may be obtained.

5. Castor Oil, 1 ounce  
Powdered acacia, 2 drams  
Peppermint water,  $2\frac{1}{2}$  ounces  
Syrup, 1 ounce  
This makes one or two doses for an adult; eight doses for a child.

6. Castor oil, 1 ounce  
1 yolk of egg  
Orange flower water,  $\frac{1}{2}$  ounce  
Water, 2 ounces  
Pinch of baking soda  
Dose as in No. 5.

Infants usually take the oil without protest since they do not taste it. Once the sense of taste becomes developed, they tend to rebel against it. One should not force the oil on children. If the child protests greatly, and one

cannot successfully disguise the oil, it is best to ask the doctor to recommend another physic. By no means should the oil be given in milk, or in other foods. Aversions to foods are often formed in this way.

The dose of the oil is a teaspoonful for a child; one or two tablespoonsful for an adult. A pinch of baking soda seems to favor its action.

### *Cascara*

Probably the mildest of the drug laxatives is cascara sagrada. It is obtained from the bark of a tree, *Rhamnus Purshiana*, and is sometimes called sacred bark, a name given to it by the Spanish. Used at night, it acts in the morning, usually after breakfast; "it works while you sleep." It is infrequently accompanied by griping or subsequent unpleasantness. Most people are able to tolerate it.

While the drug may be used in pill form, the fluid extract is preferable, chiefly because results are more certain. The disadvantage about the fluid extract is its bitter taste; this may be overcome by taking equal parts of the fluid extract and of the syrup of orange peel; or by placing the drug in capsules which must be freshly prepared owing to the fact that capsules filled with the fluid do not keep well.

There is an aromatic fluid extract which is agreeable. The process of sweetening the drug lessens the latter's potency, so that large doses are required.

The prescribed dose of the plain fluid extract is one-half teaspoonful (30 drops); of the aromatic preparation, one to two teaspoonsful. It is best not to take more than a half-teaspoonful of the plain fluid extract, especially over long periods, since large and frequent doses may gradually inflame the intestines, which fact may not become known until the process has become well-developed.

If one feels that resort to a drug is absolutely necessary in the treatment of constipation, cascara is to be preferred. The best way to employ it in constipation is as follows:

For one week take a half-teaspoonful of the plain fluid extract just before retiring; or if preferred, take ten drops after each meal. In the morning, visit the toilet after breakfast, whether there is a desire to evacuate or not. If in a few days results do not manifest themselves, increase the dose to a teaspoonful at night, or fifteen drops after meals. After a week, if the bowels are acting freely, reduce the drug by one-half; thus, if a half-teaspoonful has been taken at night, only a quarter of a teaspoonful should be

taken during the second week. Gradually reduce the amount until the drug is no longer used. It is, as previously stated, not advisable to use cascara for a long time. Of course, the dietetic and hygienic treatment should be carried out faithfully.

### SURGERY

Just as drugs are not required in most cases of constipation, so are surgical measures unnecessary. There are, however, some cases where constipation can be cured only by operation. For instance, if the constipation is caused by pressure by tumors, severe malposition of the womb, large hemorrhoids, hernia, fissures, cure is not apt to follow dietetic and hygienic observances.

Numbers of persons are loath to undergo surgical operations which they are in need of, and which are comparatively simple and free of danger. For example, many persons wear trusses and other appliances for rupture, when they could be cured in a short time by operation. Sometimes they are scared into buying the appliances, and scared by the charlatan who grossly exaggerates the seriousness of operative control. Often, too, they are gulled into buying liquids which, it is alleged, will dissolve the rupture.

Trusses and the like do have some value when properly prescribed and worn, but they are inconvenient, are not often curative, and sometimes they cause one to postpone needed operation until the latter is contraindicated. They must be worn constantly, and in the long run, cost more than an operation. No one is keen to undergo an operation, but surgery has made such rapid strides that operations for hernia, appendicitis, and the like, are almost as simple and safe as the opening of an external abscess. As a rule, those who do not recover from these operations owe such to the fact that they postponed matters too long.

Operations for piles are also simple. They can be performed with a local anesthetic, painlessly, and without much loss of time. Operation promises a quick cure, a safe cure, and a sure cure. Ointments may be beneficial, but not in severe cases. Many cases of piles are caused by constipation, and can be removed by reëstablishing health of the intestines.

Parenthetically, we might advise laymen, particularly those past middle life, not to assume that bleeding from the rectum is an infallible sign of piles. It may be true that piles are the chief cause of such bleeding, but the latter may also be due to many other things, which, if neg-



lected, may become very serious. The only way to find out the source of the bleeding is by an examination by a careful physician.

Of late years several operations have been proposed for habitual constipation. One is known as the short-circuiting operation. In this the lower end of the small intestine is joined to the lower end of the large bowel. The theory of the operation is that, by rendering it unnecessary for the waste to pass through the upper part of the large intestine—in which constipation usually occurs—evacuations will be more prompt. Sometimes a part of the large bowel is removed.

Following the introduction of this operation a few apparent cures were reported. However, the procedure has not justified itself. Many of the persons said to have been cured relapsed into their former condition; others who claimed to be benefited were hypochondriacs who would feel better for a time because of the hope they had in the new treatment. Again, the operation is not without danger to life.

Most of our foremost surgeons believe that chronic constipation is a disorder that rarely requires operative interference. The cases that seem to need operation could have been cured if proper medical treatment had been pursued soon enough. Clark says: "My surgical experience

has confirmed my original statement, so frequently reiterated, that the cases of intestinal stasis (constipation) primarily belong to the medical man." Lane says: "Operative interference on the intestines should not be considered until all other effective means have been tried to meet the disability." Case says: "My experience in the Rontgen (X-ray) study of these cases of intestinal stasis, both before and after operation, leads me to oppose distinctly the tendency to operative interference."

The surgeon claims that constipation is an impairment for the medical man to treat. The medical man says that it is a disorder that is often caused by drugs; that drugs are not only uncalled for in the cure but that they tend to make matters worse. Here we have double testimony that constipation can be controlled by natural means, by such means as are described in this volume.

## CHAPTER XIII

### RÉSUMÉ

Our grand business in life is not to see what lies dimly at a distance, but what lies clearly at hand.—CARLYLE.

THE measures by which the constipated person may reasonably expect to conquer his impairment might be summarized as follows:

#### THE AID OF THE PHYSICIAN

The practical advantages in consulting the physician periodically, whether one knows he is sick or thinks he is in perfect health, are many indeed. Since comparatively few persons are well acquainted with the conditions under which the human machine works best, it is probably true that the majority of us have some habit of life that is faulty, and which is not conducive to our efficiency and longevity. Again, disorders insidiously encroach upon us, and, though we may believe that we are perfectly sound, many of us have some actual physical defect which, though minor at present, demands correction lest it develop into something more serious.

There is no mechanism more intricate than the human body. Anyone who "monkey" with it is "monkeying" with calamity. Moreover, it is a most delicate machine. It cannot be given in trade for a new one, and there is no place where one can obtain new parts for it. Once it develops defects, we must patch them up as best we may and struggle on. Since it is so delicate, and so important, it is only proper that someone skilled in detecting its perversions and in prescribing the suitable remedies be permitted to adjust its difficulties. The person eminently suited for this task is the ethical physician. Our friends, the "patent medicine" concerns, the fly-by-night irregular practitioners, can hardly be considered safe advisors, nor should we permit them to tamper with us. Should we allow the incompetent to tinker with our complex organs, we use the same discretion as a man who brought his watch to a blacksmith for repairing. And should we suffer, we have small grounds for damages. We are not very much unlike the man who, having sore eyes, sought counsel of a horse doctor, who prescribed for him. The man became blind, whereupon he asked redress from the courts. "No damages," said the judge, "if you weren't an ass you wouldn't have gone to a farrier."

Be this as it may, the constipated person certainly owes it to himself to take counsel of his physician. Not only will an examination bring to light faulty habits and defects of which he may be unaware, but it will reveal the probable cause of the constipation. Once the cause is known, treatment can be more intelligently prescribed and cure will be more speedy.

As has been stated many times, constipation is only a symptom; it indicates that something is wrong. This something is usually a disregard of the rules of right living. While a person may be able to discover the cause for himself, it often happens that the true cause is not apparent to him. Naturally, it is more scientific and more in accord with the best results to remove the underlying error than solely to direct one's efforts to removing the constipation, without regard for its cause. For instance, if a person is constipated because of weak abdominal muscles, an abdominal binder and exercises that strengthen the abdomen may be the only things required for cure; water-drinking, diet, and other agents which tend to remove constipation, while useful, might not of themselves remove the constipation due to weak abdomen. Similarly, the constipation may be occasioned by faulty posture, improper food combinations, etc., and the most

efficient treatment can only be outlined after the true cause is known.

Should the constipated person consult the physician, then let him expose such thoughts in connection with his impairment as may be giving him secret mental torture. Numbers of persons worry themselves into a state of profound unhappiness because of erroneous ideas. For example, some believe that constipation will lead to epilepsy, apoplexy, insanity; others think that they are constipated because of a cancer of the stomach or intestines. Fearing to seek enlightenment on these dreads, they constantly beget newer and more troublesome worries and court insomnia, indigestion, nervousness, and other ills instigated by emotional unrest. In addition, they aggravate the constipation, because fear is antagonistic to the proper performance of the intestines.

The physician should be the counsellor, rather than the newspaper and magazine scare advertisements. Most of the forebodings incited by physical ills have no logical foundation; they never come to pass. If one prefers to nurse his fears, that is, of course, his privilege; but he suffers needlessly, and has no one but himself to blame.



## OBSERVANCE OF PERSONAL HYGIENE

Health requires that all parts of the body work harmoniously. For disease to exist but one part needs to be out-of-tune, and when this occurs the other parts are apt to be influenced unfavorably. Nature is strict; we cannot gain health by observing one rule of right living but by obeying all the rules without exception or favoritism.

We should, therefore, incorporate the laws of personal hygiene into our daily lives. Their practice necessitates no great oversight, no loss of time or pleasure, no hardship. They are simplicity itself, and consist chiefly in maintaining the correct posture when walking, sitting or standing; in obtaining a maximum of fresh air, including deep breathing, sunshine, adequate ventilation, out-of-door pursuits; in sleeping at least seven hours each day; in eating slowly, and at regular times, the right combination of food, and especially in not overeating of so-called hearty foods; in caring for the teeth, the skin, the eyes; in avoiding the excessive use of alcohol, tea, coffee, tobacco; in not exposing ourselves to the contraction of disease, either by direct contact or indulgences of any kind; in working moderately, sprinkling work with play, and play with laughter.

## TRAINING THE INTESTINES

Considering the inconveniences attended with moving the intestines whenever the desire arises, and the temptation to postpone the act at such times; and considering that it is the tendency of the intestines to move at certain periods, everyone, and particularly the constipated person, should institute a course of intestinal training. The best times to approach the toilet are after breakfast and in the evening; after breakfast is the time to be preferred.

Every person should strive to have one evacuation each day. This can be achieved; and one of the greatest helps in its achievement is the persistent and regular visitation to the toilet. In constipation of long-standing it may take a little time before results show themselves, but results will eventually put in an appearance.

It is important not to fear constipation. It should be considered an impairment that can be cured; and one should approach the toilet with this thought dominant. If one broods about the impairment, gets discouraged because quick results are not forthcoming, cure will be delayed. One should obey the rules laid down for curing the disorder, but the rules should not be made a burden and be obeyed with much ill will. The

best that any one can do is to do his or her part well, and this is not possible if undue anxiety is present.

In training the intestines there are several other points worthy of attention. One of these is to give the intestines adequate time for action. Some persons regard evacuation as a very unpleasant duty and hurry through it; thus, a certain amount of waste is permitted to remain. How much time should be allowed is a question that cannot be answered dogmatically; however, fifteen minutes are not too long if constipation is present; when the intestines are working naturally five or ten minutes may suffice.

Excessive straining should be avoided. Straining, accompanied with engorgement of the vessels of the head and great discomfort, is excessive, and in plethoric persons may be harmful. A small, hard pillow held between thighs and abdomen while at stool will often aid evacuation; it is recommended whenever the abdomen is pendulous or weak.

The toilet seat should not be very high. High seats do not allow the feet to be planted firmly on the floor, which, in many instances, is incompatible with proper straining and with evacuation. The seat should be low; if high, one may use a footstool. The squatting posture should be

assumed as closely as possible. If we build a toilet it would be advisable to have the seat fashioned like the modern automobile seat, possibly with more of an incline backwards. This type of seat is physiological, and is in every way more suitable than those now in vogue.

### THE USE OF WATER

We should realize that a glass of water before breakfast washes out of the stomach bile and other fluids which have passed into the stomach overnight; that water before meals stimulates the flow of gastric juice; that there is no objection to water's being taken at meals; that between meals water cleanses the stomach, the intestines, and the system generally; that at night it aids sleep. If water is taken before meals for the purpose of aiding evacuation, it should be drunk at least thirty minutes before the meal. There are very few contraindications to the free drinking of water, and there is comparatively little danger of our employing it too much.

Baths, particularly cold baths, whether in the form of sponges, sprays, shower, or tub, not only render one clean but resistant to disease. They are not absolutely essential in the treatment of constipation but, because of their stimulating influence on the nervous system, they are an aid.

If they agree with the system (and most persons can accustom themselves to them), they should be taken regularly to show best results.

### EXERCISE

The body needs exercise and should have it; moreover, the exercise should be regular and systematic. The amount of exercise required varies according to each individual, but, in general, at least half an hour of active exercise should be taken each day. The more the exercise partakes of the nature of play the better. Everyone has time for it, and if it is not possible to ride horseback, climb hills or mountains, play tennis, etc., one can make good use of indoor exercises, which will serve as well, as far as constipation is concerned, if practiced faithfully and adequately.

With the ordinary exercises should be combined deep breathing. If the abdomen is weak, and if there are deformities due to postural faults, special exercises should be taken to correct them. A few minutes given to abdominal massage, particularly when a movement is expected, will prove invaluable in many instances.

### DIET

The selection of a suitable diet is of paramount importance. It is not advisable to eat too much

nor too little. Care should be taken that the diet consists of foods sufficiently laxative; also, foods that are nutritive. It is well to limit the intake of meat, fish, eggs, cheese, and "hearty" foods, for a time, and to be partial to fresh vegetables and fruits.

An effort should be made to have two fresh vegetables at each meal, or at least one vegetable and one fruit. In the summer fresh vegetables and fruits are easily obtainable. If possible some of these should be put away for winter use. Though canned fruits and vegetables consist largely of water, and are less nutritious, they are preferable to none.

In some instances it may be advisable to go on a raw vegetable, raw fruit diet for a few days, or even for a week. Three or four meals should be taken daily, consisting of lettuce, tomatoes, apples, cabbage, celery, and other raw fruits and raw vegetables. These foods should be chewed well. Two tablespoonsful of bran may be taken three or four times a day. This régime will usually cause two or more evacuations inside of a week.

### BRAN AND AGAR

If the above measures do not suffice, bran or agar may be taken at every meal, or whenever



desired. These substances should be kept on the table, and should be used on fruits, salads, cereals; they should also be added to purees, and bread-stuffs. From half an ounce to an ounce of either may be required daily. They are perfectly harmless even when employed over long periods.

### PETROLATUM

Vegetables and fruits, as well as bran or agar, will supply bulk to the intestinal contents, and thus facilitate evacuation. Sometimes something more is necessary. This something will usually be found in petrolatum, which serves to soften the waste matter. It is often sufficient by itself, though it may work better if combined with bran, or agar, or both.

### ENEMAS

In obstinate constipation, and particularly in spastic constipation, it may be well to employ an enema daily for a short period. The enema may consist of warm water, tepid salt solution, or of oil. Enemas should not be used habitually; once the lower intestine has been freed of hard, dry matter, they should be omitted. In many cases the use of petrolatum will render enemas unnecessary.

## AVOIDANCE OF DRUGS

Laxative drugs are not often required, and if taken frequently may aggravate one's constipation. Under no circumstances should they be used habitually. Dependence should be placed upon more natural and safer methods of cure.

An observance of the above rules, which we may consider as the ten commandments for the constipated, will conquer most cases of bowel sluggishness, even persistent cases. Surgery is rarely indicated. But to prove their worth they must be carried out faithfully. Constipation needs more or less constant oversight, but it is possible to live so much in accord with the factors which promote healthy intestines as not to be mindful that we are giving the impairment much attention.

## CHAPTER XIV

### CONSTIPATION IN INFANCY

Perhaps if father, mother, and physician had to quench their thirst with beefsteak and potatoes they would feel more sympathetic toward the thirsty baby, and give him what he is calling for—water. Milk is not water, and will not take the place of water for thirsty baby or child.

—DR. A. JACOBI.

THE new-born babe generally has from two to four evacuations for the first few weeks of life. For the first year, two or three movements daily are the rule, though one movement daily may not be abnormal. During the second year, one movement each day is usual; after the second year, one evacuation daily.

The first discharges of the newborn are called meconium. They are thick, sticky, odorless, have a brownish-black color, and are composed of mucous, fat, and various substances which have been swallowed along with some of the fluid which surrounds the babe prior to birth. The discharges continue to be mixed with meconium for three or four days. If the infant does not nurse well, or if it is weak, meconium may be present for a week.

When the infant's diet is mother's milk, the discharges are of a yellow color, sometimes tinged with green, are smooth, unformed, and mush-like. They contain much water, and may turn greenish-yellow on exposure to the air. When the baby is bottle-fed, the stools are firmer, less frequent, more bulky, and are lighter in color. The presence of white, cheesy lumps (curds), and of phlegm (mucous), usually means that the infant's digestion is feeble or that the milk is unsuitable; in a nursing infant who is healthy and who gains in weight, it may not be of any great significance.

The stools do not become well-formed until food other than milk is eaten. When starchy foods are added, the movements take on a brown color.

As in the adult, the causes of infantile constipation are many and varied. In some instances, the constipation is a constitutional trait. The infant may not have a natural bowel movement for months or years and yet appear well. Enormous dilatation of the large bowel, called megacolon, twists of the bowel, strictures, pressure from tumors, are rare causes. Debilitating diseases, as scurvy, rickets, marasmus, may be accompanied by constipation. As a rule, more simple causes are operative. These we shall consider in taking

up the means by which infantile constipation is remedied.

A point of prime importance is that the state of the nursing baby's digestion and intestinal movements depends, to a great degree, upon the condition of the mother's milk. Any alteration in the quality or quantity of the milk will have an influence on the suckling. The best food for the baby is, of course, the milk of its mother, but at times the milk appears to be unsuitable. However, one should make haste very slowly in weaning a baby simply because the milk does not seem to agree. In the majority of cases, by purely hygienic treatment poor mother's milk can be changed into good milk upon which the infant thrives.

Alterations in the mother's milk are often due to poor habits of hygiene. Many mothers lead a different life while nursing to that lived at other times. For instance, they exercise less, whereas exercise is most helpful in promoting the flow of milk and in rendering it wholesome. Maternity does not require that previous habits of living be entirely changed. Of course, a few changes are necessary, but in general, the nursing mother may act with safety to herself and her child by living as she has been accustomed.

For the nursing mother fresh air and exercise

are the best tonics. What exercise is best is a matter to be determined according to the habits and preferences of each person. Some form of exercise, preferably in the open air, should be taken daily. Walking is the exercise *par excellence*. In many cases, walking exercises of themselves change milk which has been disagreeing with the infant into milk upon which there is a marked gain in weight and general health.

What the nursing mother should eat is a matter of importance. In general, she should partake of a varied diet, and favor fluids, especially cow's milk. Indigestible foods, foods digestible with difficulty, and foods known to disagree, should be avoided. Certain kinds of food, as asparagus and crabs, may in some cases affect the milk unfavorably, and cause the infant discomfort; needless to state, when the mother finds that the eating of a certain food is followed by distress in the infant, this food had best be discontinued. Fats and meats in an easily digestible form are advisable, particularly when the milk is deficient in fats; fat-deficiency is a quite common cause of constipation in the suckling.

Apart from seeing that the diet is varied, care should be taken that the diet contains sufficient salts and vitamins. Many nurslings suffer from indefinite ill health simply because these neces-



sary substances are absent from the milk, or are not present in sufficient amounts. Obviously, if the mother does not eat foods containing them, the infant cannot obtain them, and is certain to be ill-nourished. That the absence of vitamins from the mother's diet may cause disease in the nursing is shown by the fact that if a mother who has lived largely on polished rice develops beri-beri, the infant will also. If the mother eats unpolished rice, or eats of foods rich in vitamins, the disease will disappear from mother and child. Scurvy, rickets, and many other diseases are caused or favored by an absence of these necessary substances; often the symptoms of the infant are very vague, and might not lead the untrained person to think that the mother's diet was at fault. It is requisite, therefore, that the nursing mother eat regularly of foods containing vitamins, such as fresh vegetables, fruits, milk, unbolted cereals and breads, butter fat.

If the mother is constipated the infant is inclined to be also. In such cases, the milk is usually rich in proteins but poor in fats, sugars, and salts. How the mother may cure her constipation has been described in the previous chapters. If dietetic and hygienic measures do not seem to suffice, bran, agar, or petrolatum may be used with safety.

Drug-taking by the mother for the relief of constipation may produce diarrhea in the child, as well as constipation. Again, many drugs are eliminated in the milk and may have an unhappy influence upon the suckling's general health. Sometimes drugs lessen the flow of milk, and others, as "salts," may stop it altogether.

If the infant is being nursed by a wet nurse and is constipated, the constipation may be due to the fact that the nurse's milk is deficient in fats. The quality of the milk may be improved at times by exercise, a more liberal diet, cocoa, cream, milk itself. In some cases, it may be advisable to secure a wet nurse who is in an earlier period of lactation, or one whose milk is more rich in fats. Of course, no one should be employed as a wet nurse unless tests have shown that she is free of disease.

Neglect of apparently minor matters is often the sole cause of digestive and other ills. One point that is often overlooked is the prevention of constrictions of the abdomen and chest. The baby should be dressed warmly, but since its bones are soft, undue pressure made upon them may cause deformities. Frequently undue pressure is made upon the abdomen, and there ensue vomiting, constipation, crowding of the abdominal organs, including the generative organs, distortion

of the bones of the pelvis, which may lead to troubles in adult life.

Much harm is done by the injudicious use of the abdominal binder. It is doubtful that a binder is really necessary. At any rate, there is no good reason for it after the third or fourth month. It often interferes with breathing, prevents proper use of the abdominal muscles, and if tight may cause serious disorders. A good binder may be made of soft white flannel, about eight inches in width, and should be pinned with safety pins, not sewed. After the fourth month, a soft, knitted garment, having shoulder straps, and fastened to the napkin to keep it from rolling up, may be employed to keep the abdomen warm. Like the rest of the infant's clothing, it should be loose so as to allow freedom of movement. Infants require exercise, but they are often prevented from obtaining it by reason of too tight garments.

Attention to the baby's napkin will often prevent sore buttocks and chafing, which sometimes cause constipation. All napkins should be washed well and rinsed well. It is important that they be freed of all traces of soap, the latter being the chief cause of irritation. Moreover, the napkin should be changed as often as it becomes wet or soiled, and promptly. The napkin often causes harm because it is too thick and stiff, and is ap-

plied too tightly. Usually it is so wrapped about the infant that excessive pressure is made on one side of the abdomen, generally the right. This, by constricting the bowel, causes constipation. In place of the ordinary triangular napkin, it is recommended that the napkin be cut in the form of a T-square, a little longer than wide. It is to be secured by means of two safety pins, one over each hip of the infant.

The best posture for the baby, after feeding particularly, is on the stomach. This may sound revolutionary to many mothers, but it possesses great advantages. First, it gives a tenseness to the abdomen, prevents its bulging, aids the passage of waste, and the expulsion of gas from stomach and intestines. When in this position the baby strives to lift its head and back, and thus obtains very useful exercise for strengthening the spine. Babies brought up in the prone posture are often able to crawl when four or five months old; the ability to walk is acquired early. Babies used to other positions may not take to the stomach position at first, but after a short time they learn to prefer it. At any rate, it is unwise to place the infant habitually on its back; in adults lying on the back often gives rise to sleep disturbances, and it is only natural that it should do so in babies also, if it does not lead to graver

disorders. If one must compromise, then place the baby on its side.

If the baby does not receive sufficient water, this will cause an unnatural dryness of the intestines, with dry, brittle stools, often passed with difficulty. Milk contains much water, and may suffice for many infants, but there are other infants who crave water and who should have it. After the fourth month at least, it is beneficial to give the baby, whether bottle-fed or breast-fed, a teaspoonful or two of boiled water which has been allowed to cool; this should be given between feedings. Two wineglassfuls a day are none too much. If the baby is constipated, one may give the same amounts of barley or oatmeal water. By giving the baby adequate water, one will not only promote better general health and health of the intestines, but one will also facilitate weaning.

When, for any reason, it is necessary to use other than mother's milk in feeding the baby, the next best food is wholesome cow's milk. It is very important that the milk be pure; also, that each feeding contain the proper amount of the various foodstuffs suitable for the infant at the time. Not infrequently the milk is carelessly prepared, so that the baby is given too much or too little for its needs, with resultant ill health.



The milk formula is best regulated by the physician, especially if the infant is not thriving.

Lime water has been used considerably in milk formulæ, it being supposed that it rendered cow's milk more digestible. Modern pediatricians are employing it less. Cow's milk contains an excess of lime salts, even when diluted as in the usual milk formulæ. It is not believed at present that the addition of lime water to the milk enhances the digestibility of the latter; sometimes it may be provocative of constipation.

It should be needless to state that the utensils used in feeding the baby require care. Nipples, for instance, should be boiled for a minute at least once a day. Soaking nipples destroys them; when not in use, they should be kept dry, in a covered glass jar. Bottles should be washed immediately after feedings, and then filled with weak borax water. Prior to being filled with milk, they should be rinsed thoroughly. Attention to these matters will prevent many indigestions, diarrheas, febrile and other disorders.

The feedings for the twenty-four hours should be made at one time. They should be kept on ice, or in cool, running water. If the feedings are kept in bottles, the latter should be plugged with clean cotton. The contents of the bottles should be heated to 100 degrees Fahrenheit before they



are given to the baby. The temperature of the milk may be tested by dropping some of the milk on one's forearm; it should never be tested by placing the bottle, or the nipple, in one's mouth.

It is necessary that the infant be fed only at regular intervals. There should be a definite number of feedings in the twenty-four hours, no more, no less. Should the baby cry between feedings, it should not be assumed that the baby is hungry. Much harm is done by overfeeding; and in many cases this is why the baby cries. Often the baby cries because it is thirsty. In hot weather babies cannot digest as much food as in the cooler months, and less food is required; consequently, no efforts should be made to stuff the child.

Infants swallow much air when feeding, also at other times. This fact, combined with rocking, and improper posture after feeding, accounts for colic, vomiting, sleeplessness, restlessness, etc. To prevent air-swallowing, bottle-fed babies should be held in the lap of the nurse in practically the same position as in breast-feeding. The bottle should be held by the nurse; otherwise, air will be swallowed and too much time will be consumed in the feeding. As a rule, fifteen minutes is the time limit. In bottle babies the emptying of the bottle in less than fifteen minutes may mean that the hole in the nipple is

too large; if more time is taken, it may indicate that the hole in the nipple is too small. Shortly before feeding, the baby should be held upright for a short time so as to permit any swallowed air to escape. After feeding, the baby should be held against the nurse's shoulder. If it appears that the baby has swallowed much air, the infant may be patted gently on the stomach, or its back may be lightly stroked. The baby may then be placed in its bed, preferably in the prone position, with the head of the bed elevated. If the infant continues to be restless, it may be because there is more air in the stomach; if so, by holding the child against one shoulder, the air will be removed.

The constipation seen in artificially fed infants is generally due to unsuitable milk formulæ. Often the formulæ contain too much fat, producing hard, shiny, greasy, grayish, soapy stools. The stools have a sour smell, but are not offensive; often the urine has an ammoniacal odor. Should constipation be caused by excess fat, it may be remedied by placing the child on skimmed milk, maltose, and water. Cream may be added gradually until the amount suitable for the baby's digestion is ascertained.

Difficulty in digesting proteins may also cause constipation. In such cases the stools are dry,

hard, foul, and offensive. Often gas is expelled. This is relieved by diluting the milk. It is best to have the physician effect the alteration.

Sometimes the constipation is due to insufficient fat. This is remedied by using stronger whole milk, or by gradually adding cream to the milk formulæ. Often a teaspoonful of cream given before feeding will take care of the constipation of infants, whether breast-fed or bottle-fed.

In a few cases the sugar is at fault. The best sugar for infant feeding is, probably, maltose. It seems to be more digestible than either cane sugar or milk sugar. In difficult feeding cases, honey, a half-teaspoonful or more to a glass of water, often builds up nutrition and aids intestinal action.

Usually when sugar disagrees diarrhea results. This not infrequently occurs when certain proprietary infant foods are used, such foods containing, as a rule, large amounts of sugar. The most common type of diarrhea caused by sugar manifests itself by very frequent movements consisting of foamy, watery material having a sour odor; redness and soreness of the buttocks are frequent in this form. It is corrected by omitting all sugar from the milk for a time, and using only boiled milk and water (milk one-third, water

two-thirds). As the diarrhea improves, sugar may be gradually added until the infant finally receives the amount suitable for its age and weight. The other type of diarrhea, the putrefactive, is generally incited by a strong diet containing little or no sugar. Here the stools are firm, yellow or clayish, and have an odor like that of decayed meat. To correct it, the milk feedings should be replaced by barley gruel for a day or two. Then give weak milk, and slowly increase the strength of the various ingredients until the formula is suitable. Diarrheas in infancy are serious, and for this reason it is best that the physician attend to them.

Some infant constipations can be cured by substituting maltose containing potassium carbonate. It is used like other sugars, but may be increased by a tablespoonful or two until the movements become regular. This sugar may be obtained from the druggist.

Many infant constipations are due to boiled milk, and this because the boiling makes the milk more digestible. Frequently, boiled milk formulæ are not prepared properly, which fact will explain the failure of many infants to progress on boiled milk. The proper amount of milk and water should be boiled together, never separately, and should be stirred constantly while boiling; if

a scum forms, it must be removed, which causes a loss of nutriment. Should boiled milk be provocative of constipation, it may be remedied by boiling the milk for a shorter time, or by placing the baby on raw milk; one should be sure, of course, that the raw milk comes from a reliable source. As a rule, orange juice will take care of the constipation resulting from boiled milk.

Orange juice is a valuable remedy for constipation, whether in suckling or bottle-fed baby. The juice of one orange may be given diluted one-third with water once every twenty-four hours. Later, the quantity may be increased. It is well to begin at the third month to give orange juice routinely, beginning with two teaspoonsful a day. This is advisable particularly when the baby is fed on artificial milk, but it might be followed no matter what the food. Orange juice not only aids the intestines, but it prevents and cures scurvy. Scurvy does not always manifest itself by the classical symptoms—bleeding from the gums, swelling of the joints, soreness of the shins, etc. Very often nothing more is noted than that the baby cries, as if in pain, whenever it is lifted or moved. Such symptoms are frequently called rheumatism by the parent, but rheumatism is so rare in infants that it should be the last thing in mind.



The orange juice should come from a sweet, ripe orange, and should be strained. The pulp should not be used, even in older children; it may be given to the latter if the orange has not come directly from the tree; when fresh, oranges have a tendency to upset digestion. It is well also to give the juice at least a half-hour before or after feedings; given with milk, or shortly after feeding, it may disagree.

It is very important that the juice be obtained from the fruit itself. There are on the market many beverages so labelled and advertised as to lead the purchaser to believe that they contain pure orange juice, when, in reality, they consist almost entirely of sweetened, colored sodawater, or have such small amounts of orange juice as to be useless in infant feeding.

The substitution of barley or oatmeal water for the water ordinarily used in making up the baby's milk may suffice to remove constipation. Barley water may be made by boiling one level teaspoonful of barley flour in one quart of water for sixty minutes. The barley should first be mixed with a little cold water to form a paste; then it should be stirred in the boiling water and cooked over a flame until thick, followed by slow cooking in a double-boiler. After cooking, enough hot water should be added to make up for



that which has been lost by evaporation. If necessary, strain while hot. No salt should be added for young infants. When the baby is six months old, one may use two teaspoonsful of barley flour to a quart of water; and add a very small amount of salt. Oatmeal water may be made in the same way; it is a little more laxative than barley water. Water in which barley groats have been boiled is even better.

Babies can be trained to move their intestines at regular times. The training may be begun at the third month, or earlier. A definite time should be chosen, say after the first feeding in the morning, or at the time of the bath, or at a time when the baby generally soils. At the selected time, with daily regularity, the mother or nurse should hold a small chamber in her lap, place the baby upon it, and support the infant by holding its back against her chest. For a few days a suppository or soap stick may be used to initiate an evacuation. The soap stick is made by cutting a piece of Castile soap into the size of a pencil three inches long, and shaving one end to a point about one-half inch thick. The end should be rounded, and dipped in vaseline before use. Lifting the baby by one hand, the other hand, grasping the stick by the thick end, inserts the stick into the baby's rectum. A movement will usually

take place in a few minutes, though ten minutes are not too long to wait. The soap stick should be omitted as soon as possible. The training takes time and patience, but it can be effected, and repays itself in many ways.

Olive oil is very useful. It may be given in one-quarter teaspoonful doses twice daily, after feeding. If this quantity does not suffice, the same amount may be administered after each feeding; it is best to increase gradually. As much as a teaspoonful two or three times a day may be given to infants. Of course, if it causes indigestion, or if the baby has trouble in digesting fats, it should not be employed.

Massage of the abdomen may be used with success. The massage should be gentle, and should not be practiced directly after feeding. The most suitable time is before the baby is expected to sleep, and just after arising; it may also be used to advantage at the time the baby is placed upon the chamber. Pressure is made with the tips of the fingers beginning in the lower right part of the baby's abdomen. The fingers are then carried up the right side, by circular movements, to the ribs, then across to the left side, and then down the left side; this is followed by a gentle kneading of the entire abdomen. As stated, the massage should be gentle, but as the

infant becomes used to it firmer pressure may be made. The hand should be warm, and no oil should be used. About five or ten minutes' massage morning and night is sufficient.

Petrolatum may be taken by young infants, in the same amounts as indicated for olive oil. No more than is necessary to cause an evacuation should be given, and as soon as movements become free, the petrolatum should be omitted, or reduced considerably.

Suppositories made of gluten, glycerine, and cocoa butter may be of temporary service but should not be used continuously nor too often, inasmuch as they may cause inflammation. These suppositories may be purchased at the drug store.

An injection of soap suds will often produce an evacuation. This is made by preparing some soapy water, using Castile soap. A soft rubber syringe holding three ounces is filled with this. The baby is placed on its back, either on the mother's lap or on a table; and a small pillow or a folded towel is placed under the baby's buttocks, so as to elevate the hips. The nozzle of the syringe is greased with vaseline. The baby's legs are lifted with one hand; with the other hand, the nozzle of the syringe is carefully and gently inserted, for a distance of about an inch, into the baby's rectum. Before insertion, squeeze the

bulb of the syringe so that a few drops of liquid escape; this is to prevent the introduction of air into the bowel. The bulb should be squeezed slowly. After the injection, and the removal of the nozzle of the syringe, press the baby's buttocks together, or hold a towel against the rectum, until the baby can be placed on a chamber. It is wise to wear a rubber apron when giving an injection, since some of the fluid may escape suddenly. Such injections should not be used often, and they must be performed carefully.

An injection of an ounce of olive oil, or of a teaspoonful of glycerine in an equal quantity of water, is useful when the waste is hard, dry, and expelled with difficulty. Glycerine is irritating and is contraindicated save in emergencies.

Infantile constipation is only aggravated by drugs. If drugs seem to be required, the physician should prescribe them. Milk of magnesia in half-teaspoonful doses is one of the simplest drugs that can be given; it may be added twice daily to the bottle feedings, or given between feedings with a little water. Castor oil, so frequently resorted to by mothers, tends to cause constipation; sometimes it is so irritating to the baby's sensitive intestines that blood appears in the stool.

As the baby grows older, its diet should be

gradually increased. Often babies receive nothing but milk throughout the first year, and for part of the second year; this will explain infantile constipation in many instances. Of course milk should form the major part of the baby's diet for the first two years, but it is not too early to begin to add other foods at the seventh month.

At the seventh month one may give the baby some well-made cereal waters or thick gruels. These should be fed in small quantities, say a teaspoonful twice a day before the milk feeding; they may be fed from a spoon or one may pour some of the bottle milk over them. Given before the milk feeding, the baby is apt to take them more readily than when given after the feeding. Gradually the amount of the cereal may be increased to two tablespoonsful twice a day. The most digestible of the cereals are barley and oats; no sugar should be mixed with them. At the fifteenth month, one may allow other cereals, as rice, cream of wheat, oatmeal, farina, wheatena, and hominy, boiled for at least two hours in a double boiler.

After the twelfth month, the baby should be receiving a teaspoonful of beef, lamb, or mutton broth, or the same amount of beef juice, once a day. The feeding may be slowly increased so that at eighteen months an ounce of broth is taken;



at the second year, two ounces. After the broths have been in use for several months, some well-toasted bread or zwieback may be given twice daily.

If there is constipation, the pulp of a baked apple, stewed apple, prune juice, prune pulp, all sugarless, may be given in teaspoonful doses twice a day at the end of the milk feedings. Babies should always have their food unsweetened; this does not include the sugar added to the milk mixtures. Sugar is apt to upset the baby's digestion. Salt is also objectionable, during the earlier months; when used, it should be in very small quantities.

At the sixteenth month, plain, boiled macaroni may be given; and half an egg, twice a week at first. The egg should be poached, coddled, scrambled, or soft-boiled. Eggs disagree with some babies, so it is well to note whether asthmatic attacks, skin disturbances, or other untoward occurrences follow the ingestion of eggs, even in very small amounts. A small piece of butter may be spread on the bread at this age. A ripe peach, without the skin, baked apple, and a few stewed prunes may be allowed.

By the end of the first year, green vegetables, first as strained soups, may be given. Later, one or two tablespoonsful of well-cooked vegetables



as purees. Well-mashed vegetables may be added at the second year. One may start with a teaspoonful of spinach, slowly increased to two tablespoonsful. The most suitable vegetables are spinach, young string beans, asparagus tips, carrots, chard, beet greens, mealy, baked potatoes. Cabbage, baked beans, cauliflower, and corn should not be permitted until the child is over two years. No raw vegetables are allowable. An exception may be made to lettuce in small quantities, without oil or vinegar.

At two years, small amounts of lamb, chicken, scraped beef, broiled steak, baked or boiled fish free of all bones, are permissible once or twice a week. One may also give a little crispy bacon mixed with egg. Eggs and meat should not be given at the same meal, nor should meat be given more than once a day. The meats should be well cooked, broiled or roasted, and well cut up. As a dessert, custard, tapioca, bread pudding, junket, ice cream are safe.

Like the adult, the baby's meals should be regular. At the eighth month there should be six feedings a day at two hour intervals, the last feeding at ten P.M. From the twelfth to eighteenth month, there should be five feedings, two from a bottle or cup. By the end of the third year, three feedings should suffice, the principal meal to be at noon.

## CHAPTER XV

### CONSTIPATION IN CHILDHOOD

The childhood shews the man  
As morning shews the day.

—MILTON.

IN infancy and childhood constipation is apt to be of more importance than in adult life. This is because in early life the intestines are more sensitive, and toxins are more easily absorbed through them; again, the infant and child are more easily affected by disturbances which would be comparatively harmless to an adult.

As in adults, constipation in childhood should not be regarded as a disease, merely as a symptom. It indicates that there is some error, usually a hygienic error, that is in need of correction. While constipation may cause harm in itself, very often the inciters of the constipation produce more damage. The constipation is only the smoke, not the fire.

The symptoms of constipation in childhood vary. It is well known that the constipated child is inclined to be dull, listless, anemic. Disturbed sleep, indigestion, bad breath, muddy com-

plexion, and tiredness, are common manifestations. Mothers should not be so prone, however, to accept certain signs said to be pathognomonic of the impairment. For instance, a coated tongue is regarded by many as an infallible indication that a dose of physic is required. As before stated (page 24), a coated tongue may be due to many causes which have nothing to do with sluggish intestines.

Gritting the teeth is also considered by many as an infallible sign of constipation; it is, in addition, said to indicate worms. It may be occasioned by either or both of these causes, but adenoids are more often at fault. As to worms, many children are dosed unnecessarily and perniciously with various vermifuges simply because they show symptoms which are thought to denote their presence. Not a few children have been killed and others seriously poisoned as a result of such medication. While it may be that children suffer from worms more often than is suspected, the diagnosis and treatment should be left to the family physician.

Various muscle and joint pains are not infrequently complained of in childhood. Most parents attribute them to growth ("growing pains"), as if growth were a painful process! These pains are by no means natural, nor should

they be neglected. Their most common source is poisoning from diseased teeth, adenoids, defective tonsils, constipation. Faulty posture, eye errors, poor ventilation, deficient exercise, improper food are other frequent causes.

The most sure indication of constipation in childhood is the failure of the intestines to act every day. This can be ascertained only by carefully noting whether or not there is a daily movement. The mere fact that the child goes to the toilet is not sufficient; the mother should investigate for herself. As a rule, the constipated child does not go to the toilet often, and, if movements occur, they are small in amount, and are expelled with difficulty.

Prevention is better than cure. And the measures which prevent constipation in childhood are measures which also cure it.

If the general health of the child is below par, it is only natural that the intestines will be sluggish. Yet there are countless children suffering from physical defects which should have immediate attention. Of the many impairments, often unsuspected, which are common in childhood, diseased teeth, eye defects, adenoids, and enlarged tonsils deserve most thought.

Many parents regard the first teeth as of slight importance. The milk teeth are, however, just

as important as the permanent teeth. Diseased milk teeth often cause indigestion, muscle pains, anemia, and many other troubles which may be of serious import. Children should be instructed to care for their teeth, and the parent should see that the instructions are observed. Foods that develop and cleanse the teeth should be provided in the daily diet. Among such foods are rinds, hard crusts, and fruits, as apples. The attention of a dentist at least twice a year is advisable; not only will well-cared-for milk teeth lessen the danger of systemic disease, but the proper development and alignment of the second teeth will be favored. Habits formed in childhood are usually lasting; and the parent who confines her teaching solely to character building by the usual methods is not apt to achieve the best results. As someone has said, character is very close to personal hygiene. One who is careful of his or her health is also careful of the soul; on the other hand, one who neglects the body tends to be careless about morals also. Personal hygiene and ethics really go hand in hand; and if a child is taught from early life, by precept and example, to regard the body as the temple of the soul, it is practically sure to be upright in adult life, and at the same time healthy, happy, and efficient.

Unsuspected errors of vision are common in

childhood, and explain many cases of nervousness, backwardness, night terrors, bed wetting, general ill health. Probably the most prevalent eye defect in children is myopia, or near-sightedness. It is prudent to take every child to an oculist, routinely, at least once a year. If glasses are necessary, they should be worn. Many parents think that glasses are disfiguring; be this as it may, when needed glasses are not worn, the eye defect becomes worse, and may even cause blindness. Though a child wears glasses, it should not be considered immune to eye hygiene; in fact, such hygiene is all the more necessary. Therefore, care should be given to the posture the child uses while reading or writing, the light, the length of time devoted to continuous reading, etc.

As to adenoids and diseased tonsils, the best advice is to have them removed. Delay entails possible serious effects. That these conditions interfere with proper mental and physical development is, or should be, common knowledge. Operations for their correction are comparatively simple, and are not, in themselves, dangerous to life.

Next in importance to good health generally, the best safeguard against constipation is training in toilet habits. Were it the universal custom



to teach intestinal hygiene from early life, constipation would be interesting only by reason of its rarity. At any rate, the child should be taught to go to the toilet every day, directly after breakfast. By showing the child the value of the practice, one may gain coöperation. Girls may be told truthfully that good toilet habits add to physical appearance by preventing muddy skin, by putting color in their cheeks, and so on; boys may be appealed to by stating that it will help them to be robust and strong, and thereby aid them to gratify their youthful ambitions to be soldiers, firemen, Babe Ruths, or Jack Dempseys. If training is instituted, it will not be necessary for the child to postpone the desire to go to the toilet because he or she is in an unsuitable place when the call appears. Again, the child will not be forced to interfere with his school work, nor will other scholars be distracted by frequent comings and goings while class is in session. If no training is practiced, then, at least, the child should be taught to attend to the duty whenever and wherever the desire arises. Girls are particularly in need of this instruction; lacking it in childhood, they grow to womanhood with great scrupulosity in this and in other matters, and are, consequently, more constipated than men.

It is prudent to see that the child has ample

time to attend to toilet requirements. Often children are permitted to sleep late, or in one way or another are practically compelled to rush off to school the minute they finish breakfast. At least a half-hour should elapse between the breakfast and the school hour, so that the call may be heeded. If there are several children in the family and only one toilet, a certain time should be assigned for each child; moreover, the parent should make sure that each child goes to the toilet at the specified period.

Care should also be taken that the toilet seat is not too high for the child. If so high that the child's feet do not rest on the floor firmly, a foot stool should be provided. The squatting posture should be encouraged. Few children receive any instruction in the use of toilet paper; it is important, in girls especially, that there be no rubbing forward; sometimes this causes genital inflammations. It should be needless to state that the toilet should be well cared for; if squalid, cold, or otherwise uncomfortable, the child is tempted to shirk it, or to spend less time in it than is required for a complete evacuation.

No hard and fast rule can be laid down as to the amount of water a child should have, as this varies with the age, health, season, food, exercise. However, at two years the minimum intake of

water in each twenty-four hours should be one quart, which amount should be increased to two or three quarts for a child of seven. Soda waters and other carbonated waters are not good for young children. If one permits the child to drink water at meals, a certain amount of oversight is necessary so that the food will not be swallowed without mastication. There is scarcely any better habit to encourage in the child than that of drinking water freely.

Most children exercise sufficiently, particularly in warm weather. There are, however, some children who prefer to remain indoors while those of their own age are at play out-of-doors. The indoor child is the anemic, frail child; the outdoor child the robust one. It should not be forgotten that children who spend much time by themselves, or mostly in the company of older people, are inclined to become moody, fanciful, secretive; and in adult life, because these characteristics have become fixed, nervousness, inefficiency, and unhappiness are their lot. Quiet children may be smart, judged by books, but their imaginations are supplying them with fanciful pictures which sap ability to adjust themselves to conditions arising in adult life.

Childhood should be playtime; there will be plenty of time for work, and plenty of time for

serious thought, and little or no time for play, before many years. The world has no sympathy for the unfit, the misanthrope. If a child is to develop into a useful citizen, he must be started right in childhood. One of the best agents for this purpose is play out-of-doors with other children. Even though the child dislikes such play, he should be encouraged, even forced, to take interest. The sunshine, the fresh air, the laughter, the exercise, the battle of wits, even of fists, will do more real lasting good than hours spent poring over a book or in day-dreaming. Knowledge is a good thing and is powerful when rightly applied, but what value has it if its acquisition is bought with ill health? In early childhood the average child can learn enough of school work while in school. Hours out of school are meant for play, and should be given to play. More children than is suspected suffer from too much school, and in these cases great benefit, physically and mentally, follows a temporary quitting of school, its place being taken by rest and moderate exercise out-of-doors.

In winter many children obtain insufficient exercise. But winter has sports that appeal to the young, and in which they should be encouraged to indulge. If the child is dressed warmly—not overdressed—and has leggins, there will be prac-

tically no danger of his catching cold. As a rule, children who take cold easily do so because they have been dressed too warmly, and live in poorly aired rooms. It should not be necessary to state that children should sleep in well-ventilated rooms. The idea that night air is harmful is a bugaboo that is entirely erroneous. Night air is no more harmful than day air. If the child is protected from drafts, and if it does not habitually throw off the bedclothes while asleep, no harmful effects will follow from its sleeping with the windows open; in fact, it is more likely to sleep better and to be more refreshed on awaking.

Almost any form of active exercise will benefit constipation. If play out-of-doors is not possible, suitable indoor exercises should be followed. It would be a good thing if children were taught to spend a few minutes in making bending, twisting and swinging motions morning and night, preferably while in the night clothes as this permits freedom of movement and contributes to a graceful carriage. If the parent coöperates by exercising with the child, more enthusiasm will be evoked; and there is more likelihood that the exercises will be continued. Indoor exercises are not, however, especially attractive to children, and for this reason play out-of-doors is prefer-



able. When old enough, children should be encouraged to join gymnasiums, to take interest in sports, and to participate in them as far as they are able. A word of caution is necessary in this regard: children tend to overdo themselves when playing at strenuous games. This may prove harmful, as the comparatively great frequency of heart and other diseases among competitive athletes attests. If the child is taught to rest when he begins to feel tired, and if he is under the eye of an athletic-master when competing, there is slight danger of harm.

Deep breathing exercises are particularly valuable in childhood. If all children practiced them, the susceptibility to tuberculosis would not be so great. Such exercises, besides strengthening the lungs, develop the muscles and bones of the chest and spine, improve the posture, and strengthen the abdomen. As with other things good for the child, but which he is not apt to like because their real necessity is not understood, one may get the child to perform these exercises faithfully by giving the latter a value that appeals. Girls can usually be won by appealing to their looks; breathing exercises tend to fill out the hollows of the neck, which are not very attractive, especially when low neck dresses are worn; they also give



grace to one's carriage. Boys may be told that the exercises improve the wind, strengthen the chest, and thus help one to be an athlete. Children when told to breathe deeply make a great show in doing so, but really accomplish very little. For this reason they should be instructed carefully as to how deep breathing is correctly performed.

Abdominal massage is useful in the constipation of childhood. It should be performed by the mother in the same manner as has been recommended for adults.

Faulty posture in childhood is not only responsible for many indigestions, constipations, and other disturbances of a like nature, but also for many bony deformities. These deformities are very prevalent, especially in girls. It should be remembered that in childhood the bones are immature, and, therefore, more susceptible to distortion by faulty habits of sitting, standing, and walking. As a rule, children are taught correct posture in school, but the parent must use some oversight lest this instruction be minimized. Children tend, at times, to exaggerate the correct posture; this is as harmful as faulty posture.

If the weight of the clothing falls chiefly on the child's back or chest, or if there are constrictions

of the chest or abdomen, the correct posture cannot be maintained; also, the proper activity of the heart, lungs, stomach, and other organs is hindered. What has been said previously regarding clothing applies to children particularly. Special attention should be given to the feet, if troubles in later life are to be avoided. The wearing of roomy, natural shoes that are kept in repair, and frequent indulgence in exercises that strengthen the feet, will usually prevent weak arches and allied impairments.

As in the adult, constipation in childhood most readily succumbs to a suitable diet. As to what constitutes a suitable diet for children, many mothers are at a loss. As a result, numerous children are being improperly fed. They may receive enough food as far as quantity is concerned, but the diet is not sufficiently balanced so that there will be an adequate intake of inorganic salts and vitamins. These salts and vitamins are more important to children than to adults and lacking them, many children are sickly, nervous, bed-wetters, and inferiors. Ignorance as to what constitutes the right diet for children is inexcusable, especially when one takes into account the number of popular works on the subject by competent authorities.

The most salient points relative to the diet in childhood, from two years on, are as follows:

### 1. *Hearty Foods*

In childhood there is not much need of meats. If used, but a small quantity should be permitted, and only once daily. It is best that the meat be boiled, roasted, or broiled. Fried meats are objectionable. Fish, except fried fish, is allowable in moderation.

Milk is blood; it is, also, rich in vitamins, and is one of the most satisfactory foods for children. If taken in large amounts, it may lessen the intake of other foods, and may favor constipation. In some childhood constipations it may be necessary to lessen or to omit milk for a time. If constipation exists, milk between meals, especially in quantity, should not be allowed.

Eggs are also good foods. They should not be fried. Raw and hard boiled eggs are digested with great difficulty. It is well to remember that the average sedentary adult can obtain sufficient protein for his daily needs from one egg and one glass of milk. The protein requirements of a child are very much less than those of adults; and if a child has milk, eggs, and meat every day, it is receiving an excessive amount of protein foods. In some instances, eggs cause asthma, eczema,

and other troubles in childhood; the same is occasionally true of milk.

Beans and peas are rich sources of protein. They are, compared to meats, very economical. They may be used in soups, and such soups, when made with milk, can replace meats to a great extent. Beans and peas should not be eaten in large amounts nor too often, as they may putrefy and give rise to constipation. They are to be well masticated also. Besides their food value, beans and peas are useful in childhood because of their high percentage of iron.

Nuts are valuable additions to the diet of children. They may be used alone in small amounts, or in cakes or salads. They should be well chewed. For young children peanut butter is very useful.

Meat stews containing vegetables are valuable. They should be cooked well and the fat should be removed. Clear soups have no food value, though they promote appetite and digestion.

In addition to greasy and fried foods, ham, liver, sweetbreads, sausage, pork, smoked, dried and salted meats and fish are forbidden.

## *2. Vegetables*

Vegetables are of very great importance in childhood. They are nutritive, laxative, and con-

tain the inorganic salts and vitamins so necessary for proper growth.

As recommended in another place, vegetables should be cooked in double boilers, and the water remaining after cooking should be used for soups, sauces, etc. If thrown away, much of the food value of the vegetables will be lost.

Practically all green vegetables are allowable in childhood, and their use is strongly commended. They should be thoroughly cooked in a very little water. When chopped fine they are more easily digested and are more laxative. Large amounts of bulky vegetables are not advisable since they may cause indigestion. It is recommended, however, that the child eat at least two vegetables at every meal, or at the principal meals, in small amounts. The routine use of potatoes should be avoided, also large amounts of potato. Potatoes are more easily digested when well baked.

For quite young children, raw vegetables, as radishes, tomatoes, cucumbers, celery, cabbage, egg plants, and green corn are not allowable. As the child grows older they may be permitted in small amounts if well chewed.

Vegetable soups, as well as vegetable salads, if not too oily, are permissible. Soups are preferable to salads in early childhood.

An effort should be made to have vegetables

every day in the year, even if one has to resort to canned products. From a food and laxative viewpoint, fresh vegetables are much more valuable than the preserved. Canned tomatoes are rich in vitamins.

### *S. Cereals*

There are any number of cereals suitable for use in early childhood. Some of these, as oatmeal, hominy, rice, cracked wheat, are purchasable in bulk. Many other cereals are supplied in packages. The latter cost more comparatively, and are more difficult of digestion by young children.

Cereals that require cooking should be cooked not less than one hour. As a rule, it is advisable to cook them three hours. When underdone, the cereals are apt to cause digestive disturbances; even if they do not apparently, they are not digested properly, since the object of cooking is to break up the tough covering of the grains. Various skin rashes, which may be permanent, may follow the prolonged use of underdone cereals.

When rice is purchased, preference should be given natural brown rice. This rice is about two times as valuable in heat, energy, and resisting power as white, or polished rice. White rice is



useful as a starchy food, but it is deficient in fats, mineral salts, and vitamins; the latter are present in the brown rice and thus the latter has a higher food value. By bringing children up accustomed to natural food stuffs, or food stuffs in their natural form, they will be healthier, and will be apt to preserve health by choosing the same foods in adult life.

Barley is useful both as a soup and a cereal. It has nutritive value, and contains vitamins.

Very coarse cereals are not advisable in early childhood, but if the child is constipated they may be tried in very small quantities, added to other cereals, and their effects noted. If digestive disturbances arise they should, of course, be discontinued. Or one may add small quantities of fine bran to the ordinary cereal. As a rule, bran is better tolerated by older children.

If sugar is used on cereals, not more than one spoonful should be allowed on each saucer of cereal. Milk or cream adds to the cereal's laxative action. An effort should be made to vary the cereal from time to time. In some families the same cereal, as oatmeal, is used over long periods, and, especially when the cereal is not cooked thoroughly, digestive disturbances are fostered and appetite is diminished.

Cereals, cooked or uncooked, are advisable for

daily use by the child, preferably at breakfast. When varied, the child is not apt to tire of them.

#### 4. *Breadstuffs*

Hot breads, pancakes, doughnuts, hot rolls and biscuits, and other hot foods of a similar nature, are prohibited because of their difficult digestion. Whole wheat bread, graham and bran bread may prove irritating for very young children, though if these breads are made well they may be tolerated in small amounts. Bread with molasses, syrup, honey, sorghum, is nutritive and laxative. Butter, when spread well on bread, is also laxative. Gingerbread is especially laxative for children. All breadstuffs should be stale or dried in the oven until crisp. The use of hard, crusty foods is commendable, since these foods tend to develop the teeth and jaws. Used at the end of a meal, they help to cleanse the teeth.

#### 5. *Fruits*

Fruits rank with vegetables as being of particular value in childhood. Many mothers give their children fruit more for pleasure than for food value. If the real worth of fruits were appreciated, it would form a regular part of the child's diet.

Fruit, like vegetables, is of value because of its salts and vitamins. Moreover, it is nutritive

and laxative. When constipation is present much dependence for its removal is to be placed on these two foods.

Most fruits can be given with safety in childhood. They may be taken raw or cooked. If raw fruits are used they should be quite ripe, and should be well masticated. If raw fruit disagrees, the fruit should be steamed or cooked in some other way. Only a small quantity of sugar should be added to cooked fruit.

It is well to remember that raw fruits may be contaminated by dust, possibly by harmful bacteria, and may thereby cause digestive troubles. Fruit is more apt to be contaminated when exposed to the air. One should purchase fruits from a dealer who keeps his ready-to-eat articles in a covered case. After purchasing, the fruits should be kept in dust-tight receptacles. They should be washed before eating. If there is any doubt as to their purity, they may be disinfected by immersing them in a three per cent solution of peroxide of hydrogen for about five minutes, after which they should be rinsed well.

Figs contain a high percentage of sugar and are usually well liked by children. Smyrna figs are the sweetest and the most easily digested. Dates are rich in phosphoric acid and contain a great variety of valuable salts. When sugar causes fer-

mentation in children dates may be substituted in cooking the food.

Prunes are nourishing and laxative. They should be freed of their skins; this is best done by soaking them in water overnight. They may be eaten raw, or stewed, or in puddings.

Cherries contain much sugar, also potash, lime, and other salts. When freed of their skins and in season, they are not likely to upset even a delicate stomach.

Apples when sweet and ripe are easily digested and are laxative. They contain many valuable salts and cleanse the teeth. A baked apple, or stewed apples, for breakfast is a pleasing way to give them. In place of sugar, honey may be used on them.

Half an orange daily, or several times a week, is advisable not only for its laxative action but for its good effects on the body in general.

In season, fresh fruits should be eaten daily with as little sugar as possible. At all seasons of the year, however, fruit should be given in some form every day. Raisins, apricots, apples, peaches, and other fruits are always available in dried form, also canned. A child who has vegetables, cereals, and fruits daily is not apt to be constipated, nor to be otherwise in poor health.

## 6. *Sweets*

All children have a love of sweets, which is often gratified too much. Candy is not advisable prior to the fifth year, and then sparingly; the same applies to chocolate. Of candies, molasses candy is best as far as laxative action is concerned. Popcorn is often laxative.

Pastries, pies, rich cakes and all highly sweetened foods are forbidden in early childhood. Of cakes, plain, light cake is the best; a small piece may be allowed once a day. There is no objection to gingersnaps, plain cookies, milk and soda crackers, bread and syrup, molasses, or jelly if used moderately at not more than two meals a day. For dessert, plain puddings made from rice, farina, cornstarch, stale bread, custard, and junket are best.

In place of using cane sugar routinely, brown sugar, honey, molasses, maple syrup, should be substituted occasionally.

## 7. *Fats*

Greasy and fried foods are inadvisable. Thus, heavy soups, salads rich in oil, and pork, are not permitted. Cream may be used in small amounts on cereals. Good butter is valuable. For the poor man oleomargarine is a very good, pure fat. There is much prejudice against it which is un-

warranted. In any case, it is preferable to an inferior grade of butter.

### 8. *Drinks*

Tea and coffee are positively forbidden in childhood. If employed they are certain to cause harm. In their place honey is often acceptable. Stir one or two teaspoonsful of extracted honey in a cup of moderately hot water, add milk as desired, and use as a beverage. Cocoa is allowable if diluted and given in small quantities.

In addition to providing the child with a suitable diet it is necessary to pay attention to how and when the child eats.

A common fault in children is undermastication. The child should be taught to eat slowly, and not to drink anything while food is in the mouth. In certain cases it may be necessary to assign a certain time that the child must spend at table whether or not the meal is finished sooner. If so, the child will soon learn that it may as well take its time about eating.

Eating between meals, especially of sweets, is another harmful habit. Some parents believe that eating between meals does not count; it does count, and it often produces loss of appetite and



indigestion. Unless there is some particular indication, as poor health or extreme youth, eating should be done only at the regular meal times. Occasionally some children will be found who require small quantities of food between meals; if so, substantial foods and not pure sweets should be given.

If the above measures do not suffice, the child may be given a teaspoonful of olive oil two or more times a day; if it agrees, the amount may be increased. Or liquid petrolatum may be employed; it is best given between meals. Also, plain petrolatum spread on bread.

Agar is often useful. As much as two teaspoonsful may be given a child of five years. It may be added to cereals, fruits, purees, gruels, or cooked with the breadstuffs. The child may detect its presence unless it is rendered finely granular, and it may be necessary to liquefy or gelatinize it. As with the adult, it should not be used longer than is necessary. Of course, if the child is sickly it should not be given agar, or oils of any kind.

If the waste is dry, hard, and streaked with blood, an occasional injection of two or three ounces of sweet oil may prove valuable. It is well, however, to leave this to the physician. So-called spastic constipation is comparatively rare

in children, blood in the stools being more often due to piles, fissures, inflammations, and other abnormal conditions which should have immediate medical attention.

If a child has a suitable diet, exercises freely, drinks a sufficient amount of water, and goes to the toilet at regular times, there is no reason why it should not have regular movements. Drugs, suppositories, and enemas are not advisable. If artificial aids seem necessary, preference should be given to small amounts of bran, agar, or petrolatum. If these fail, the case should have the physician's care. And if the child has been reared properly, it will be willing to visit the physician, and to coöperate in the treatment he prescribes. Unfortunately, many parents hold the doctor up to the child as a very wicked bogie who delights in carrying children away, in thrusting castor oil down children's throats, in cutting off their ears, or what not. The result is that the child is not only afraid of the doctor, but when the child becomes ill, his fear retards the physician's best efforts and prolongs the cure. The child should be instructed to look upon the doctor as a friend, as someone who has the child's best interests at heart, and as someone to whom all people, children and adults, can turn, assured that whether

their problems are mental, moral, or physical, they will find in him a sympathetic, understanding, and safe counsellor as to the road they may take to health and to happiness.

THE END



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